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Original Communications

SHALL THEY PASS?*

By J. ALLISON HODGES, M. D., Richmond, Va.

This discussion, while not directly scientific, is intended to be distinctively professional. Its main purpose is to ascertain the opinion and formulate the decision of the members of this Society, if possible, upon the advisability of adding any additional members of any of the different cults to the existing State Board of Medical Examiners. Recently, this subject has acquired more than usual professional interest, due to the fact that repeated attempts to change in various ways the present medical laws of the State have been suggested by the adherents of those seeking State license to practice the Healing Art.

As a result, three schools of thought have appeared in our profession, the one maintaining that it might be best to allow a representative of any fairly large following of any specified system of healing to have its representative upon the State Board of Examiners, and thus quiet the recurring agitation of this question, while another, asserting that the present laws are sufficient if only properly administered, would let the matter rest, while still another group would offer no objection, asserting that in a democracy such as ours, the people should have just what they wish, and that the medical profession should not be the sole administrator of the law.

These different points of view apparently prove that many in the profession have become disgusted with the recurring biennial exhibition at each succeeding legislative session, when our profession is put upon the defensive, often to the detriment of its dignity, and more frequently to the exploitation and advertisement of the irregular practitioner. We blame no one for this, for many of us have been sorely tried and harassed, when our altruistic motives have been misconstrued, because misunderstood, but we deplore that final judgment which virtually admits defeat because of lack of sufficient education of the masses as to the value and accomplishments of the Science of Medicine. Until the people at large, however, are educated and enlightened as to these facts, they must be held blameless, and, on the other hand, no one is to be considered more responsible for this state of affairs than the medical profession itself, which has never entirely taken the public-at-large into its confidence and support.

We must realize, and be willing to assert it, that we are not only practitioners of medicine, but that we are commissioners of Health to all the people, and that ours is the only system of the Healing Art that has not only cured disease, but prevented it, and the only one that is accredited by the great governments of the world. Our professional allegiance and duty demand this of us, and in these days of increasing commercialism, we should not forget our obligations, nor depreciate our opportunities.

But what can we do practically and efficiently to meet this condition? Obviously, we cannot deny, nor limit the introduction of new bills, and it is equally obvious that a continuance of these public biennial exhibitions of pseudo-science are not enlightening to the public, nor beneficial to the regular profession, and yet, something should be done, representing the consensus of opinion of the whole profession, which would be best for present and future professional interests. In our opinion, this end can be reached in one way only, and that is, by means of Public Health Education, which in this day of increasing knowledge has become an elemental necessity. This means a new kind of education for the physician, as well as the public. There must be an awakening of the medical conscience as to the trusteeship of physicians as promoters and conservers of community, as well as of individual health.

Physicians are best qualified to give to the public the basic principles of health preservation, and they must assume their responsibilities and live up to their opportunities. The public is already demanding public health education increasingly each year, and in

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answer to this Macedonian cry, the physician must become to a greater degree the educator as well as the practitioner. The people should know the distinct achievements in the advance of medical science, and know, also, that they have been offered freely to the world as our profession's contribution for the protection and preservation of life.

In this fast-moving age, the individual as a personal entity has been merged largely into the group class, and the facilities for mass education have never been so numerous, nor so effective. Already physicians have accomplished much, individually and through their associations, through medical colleges and state and federal governmental agencies, but the people do not know these things; they do not know even that nearly all of the great discoveries and inventions in the field of scientific therapy "which have extended the average of human life in the memory of us all over ten years, and which in the future will extend it another decade by eliminating the epidemics which in the past have swept millions to an undeserved death, can be traced to the door of the doctor—never to the gilded den of the quack."

In the future, the doctor must not be the lone voice crying in the wilderness, he must forego his time-honored reticence, "his innate fear of publicity and the supposed restriction of his ethical limitations, which have tended to prevent him from covering his proper field for a physician's activity in teaching the people how to keep well."

The intelligence of the non-medical public is quite as high as that of the medical world, and this must be considered, be evaluated and be made productive by co-operative effort and the relationship of mutual interests. In short, the public must be taken into the confidence and knowledge of the physician, and share alike in the great and glorious results that await their combined strength and influence in this ultimate plan of universal health education.

It has been claimed by some puny pessimists that since quacks still exist, and have always for that matter, nothing can be done, nor has ever been done, to remedy the evil, but this is idle gossip, due only to the misconception by the doctor of one of the basic duties of his profession, and the consequent ignorance of the public because of the lack of proper knowledge or because of misrepresentation of the true facts by designing irregular practitioners.

Probably there was never a time when a closer relationship between the doctor and the public was more desirable, or more necessary than at present, for the increasing number of specialists, and the decreasing number of country practitioners, together with the materialistic attitude of some of our unthinking members, have made the gap between physician and patient wider, and to a certain extent undermined the respect in which the medical profession is held. As proof of these facts, it may be stated briefly that, during a sixteen year period of one of our great medical universities, this intitution has sent out 965 graduate doctors, and only four of them today are practicing their profession in rural districts, and many, if not most of the others, have entered the field of specialism.

The case of the mountainous section of Virginia, West Virginia and North Carolina is outstanding, for five million mountaineers, pure-bred Americans, live in isolation in their highland empire, without a single doctor in some of the counties. Granting, then, that a medical necessity exists, and that education, and education alone, of both the physician and the public can meet this situation, and thus unhorse the medical pretender, who is seeking legal recognition, what is the practical solution?

Recommendations.

As a general plan for preventing and eliminating the conditions named, and as an entering wedge into what must ultimately become universal health education, the following recommendations are submitted:

1. That the Medical Society of Virginia reaffirms its approval and adherence to the medical laws (Medical Bill; Chapter 68, Regulating the Practice of Medicine) of this State, and pledges its continued professional support in their administration;

2. That it discountenances at the present time any addition to the membership of the State Medical Examining Board;

3. That it memorializes the House of Delegates at this session to consider and, if possible, formulate some definite plan for dealing with the medico-legislative problem;

4. That, for this purpose, it offers for its consideration the following plan: The appointment by the State Chairman of the Executive Council of a local Professional Relations Com-

mittee, consisting of three physicians resident in each Councilor district, who shall have charge locally, with the State Chairman of the Executive Council and the Chairman of the State Legislative Committee, of all medico-legislative problems that may arise in such districts;

5. That these local committees in each Councilor district shall have the right to organize according to their own preferences, and shall have the authority to associate with themselves such local medical, educational, religious, health and lay associations, especially the local Woman's Auxiliary, as they may deem proper, the local chairman keeping the State Councilor Chairman informed, and he in turn, to keep in contact with the State Legislative Chairman in all matters relating to medical legislation.

In brief, the dominant purpose in all this, is to develop direct contacts through associated and helpful agencies in the home districts that will educate the law-makers and the public to secure the enactment of constructive legislation designed for the common good. This will be no easy task, but it is not an impossible one, and is one that should appeal, not to the profession as a mere profession, but to the true and loyal spirit of the profession of medicine. Medical legislation is only a means to an end, and the average legislator is ready to listen to an unbiased lay opinion; consequently, the desire of the physician not to gain a patient, but for the patient to gain health, will be better understood and appreciated.

We should not forget that most of the legalized advances in the prevention of disease have been due to medical legislation, and we should encourage and foster, not criticize nor hamper unduly the methods pursued, be they honest legislators seeking the light and knowledge of a better understanding of some of these new and difficult medical problems, for we, as a profession, are under distinct obligations to them for many constructive measures advantageously affecting the profession and the health of our citizens.

They still will need education, and we will need their help and co-operation. Our vantage ground is higher and our lights are clearer, and we must lead the way to a better understanding and realization of our high and honored ideals of service to the profession and the people. If we do not, our ceaseless and brilliant research work for the advancement of science and the betterment of humanity will be for naught. The Principles of Ethics of the American Medical Association begins with these words: "A profession has for its prime object the service it can render humanity."

To translate this aphorism into practical application, without bias or prejudice, no profession probably has had to battle so long and continually as ours, but the inestimable boon of health for all the people is one of their inalienable and guaranteed rights under the constitution. We, as self-appointed guardians and heralds, must see to it, that the temple is kept pure and undefiled, and that they who, either ignorantly or maliciously would soil or tarnish its sacred precints, "shall not pass."

5 *East Franklin Street.*

PRACTICE OF MEDICINE—HOW IT SHOULD BE REGULATED BY LAW.*

By H. U. STEPHENSON, M. D., Richmond, Va.

In what does the practice of medicine consist? I conceive that all doctors agree on the following definition. Some might wish to amplify it, but I think that none would curtail it.

The practice of medicine might properly be assumed to mean the utilization of all scientific means that promise the relief of pain, the cure of disease and the prolongation of human life.

If doctors were not experimenters, the science of medicine would stagnate. New methods of treatment are constantly being devised; new operations in surgery are not infrequent; but the new methods and the new operations are alike based on knowledge which is the result of ages of study, of patient investigation.

Science is an all-embracing term. Planets have been proved by great mathematicians who had little knowledge of astronomy. Physicists have made possible some of the great developments of chemistry. So medicine owes much to other branches of study, to physics, to chemistry, and more particularly to that branch of biology that is called bacteriology, with its related science, bio-chemistry.

But does the practice of medicine properly include the utilization of methods or discoveries or operations or plans that are in dissonance with its store of knowledge gained through the centuries? I am not sure that

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this question may lightly be dismissed with a mere negative. We have no right to say that there is nothing new under the sun; but we have the right—yea, it is our duty—to think seriously before accepting theories that conflict with facts that we know have been established, and to demand that those who offer such things for our acceptance present at the same time testimony to prove their claims for recognition and acceptance.

I need not recall to your minds the details of the great anthrax challenge given by Pasteur, but when that master bacteriologist staked his reputation on the successful immunization of twenty-five out of a herd of fifty sheep and pledged that the twenty-five unimmunized would contract anthrax, he offered proof. The challenge having been upheld by the actual experiment he gave proof; and doubters were silenced.

We now may wonder at the doubters; but certainly in modern times doctors of medicine are justified in doubting. In fact, their positions in society force them to doubt. A doctor is not merely an agent who practices medicine; he is, in effect and reality, a safeguard against those who would practice improperly or would risk the health and the lives of human beings in the testing of plans and schemes which seem to him hazardous.

Individual doctors have neither the time nor the inclination to do all that really lies in the line of their duty to protect the public against those who ignorantly or through avarice offer services that can not help and may seriously hurt. This is no reflection on the individual doctors. The public can not realize the responsibility which a doctor feels deeply; and being unaware of this sense of guardianship, the public is only too apt to regard as selfish and mercenary the efforts of doctors to stop the work of these irregular healers or curers. It was official recognition of that fact which led the States to create medical examining boards, charged with the specific duty of licensing or withholding license from those seeking to practice medicine.

In Virginia, and virtually the same definition holds good throughout the United States, the practice of medicine is by the Code (see Sec. 1622) defined as follows: "Any person shall be regarded as practicing medicine within the meaning of the chapter (the chapter dealing with the duties of the State Board of Medical Examiners) (1) who opens an office for such purpose, or announces to the public in any way a readiness to practice medicine in any county or city of the State, or prescribe for, or give surgical assistance, heals, cures, or relieves those suffering from injury or deformity or disease of mind or body, or advertises, or announces to the public in any manner a readiness or ability to heal, cure or relieve those who may be suffering from injury or deformity, or disease of mind or body for a compensation; (2) or who shall use in connection with his name the words or letters, 'Dr.', 'Doctor', 'Professor', 'M. D.', or 'Healer', or any other title, word, letter or designation intending to imply or designate him as a practitioner of medicine in any of its branches, or of being able to heal, cure or relieve those who may be suffering from injury or deformity or disease of mind or body. This section shall also apply to corporations."

The code also contains a liberal section regarding the rights of those who may be graduates of sectarian schools of medicine, relieving them of the necessity of taking examinations in subjects which would be necessary information for the regular practitioner. Because osteopathy is "Sectarian" within the meaning of the code, an osteopath has been added to the examining Board; for the same reason, there is a homeopath on the Board.

I am mentioning these branches with the hope that there will be no discussion of the wisdom or unwisdom of these additions. There was considerable opposition to the inclusion of each; and there are today many of our members who are unreconciled; but the facts are accomplished, whether for good or ill; and discussion will do no good.

Now, as to future additions, how are they to be determined? Are the Virginia doctors to be left fighting single-handed for the protection of the public? It is an easy thing to understand the attitude of the uninformed who are told that this effort at exclusion is nothing more than the guild spirit which would protect the incomes of the chosen few and prevent earnings for others equally qualified. Of course, highly intelligent laymen do not credit this nonsense; but there are few communities anywhere that can boast a large proportion of widely cultured and highly intellectual people.

It would seem to me to be an excellent thing, from the viewpoint of the State, of the citizens, and of the professions, if there were to be

created in Virginia a non-technical commission of scientists, composed of members of the faculties of our institutions of higher learning and professional schools. No profession should be represented by more than one member; in fact, the membership should be chosen without consideration of profession or calling but on the basis of the character and ability of the men who would be members.

It would be the duty of this commission to hear the claims of any group asking for recognition, either by the creation of a new board to control practice, or entrance, or for the addition of membership to an existing board for a like purpose; and, if, for example, in the judgment of such men it should be decided that the healing, curing or relieving of some of the gravest troubles of body or mind should be entrusted to the care of men who have educational qualifications less than those needed for entrance to a medical school, the General Assembly of Virginia should accept that judgment. The people would undoubtedly suffer, but our profession could not be charged with failure to attempt the protection of health and life in Virginia.

As it is, in our State as in others, legislators must not be blamed too severely for listening to the blandishments of those who seek for their group a higher social or professional standing than they have occupied. The legislators are not fully informed; they are assembled for a brief session; they have manifold duties to perform; they hear fervid pleas for the new science, new healing art, or what not, and they ask themselves—"What harm can it do to recognize them?"

With such a commission as I have suggested, the doors would not be closed to those special pleaders; nor would the doors be closed to those who would oppose the special pleas, but, at least, the whole subject would be placed before the legislators with a recommendation from an unbiased, scientific body, whose members sit as members of college faculties, who can have no possible prejudice against any set of claimants.

The present medical practice act of Virginia is perhaps the best law governing the practice of medicine of any of the States in the Union. In fact, but for the shrewd lawyers camouflaging with imaginary technical points under our law, we would have no difficulty convicting. Dr. J. W. Preston, Secretary of the State Board of Medical Examiners, has kept in close touch with the Commonwealth's Attorney prosecuting violators of the Medical Practice Act and is in a better position to know the weak points in our law than any man in the State. He thinks the law can be strengthened by the following amendments:

1. Clause requiring an applicant wishing to undertake the Practice of the Healing Art in any of its branches to present to the Commissioner of Revenue in the locality in which he wishes to locate, proper proof that he holds, and that he has registered his State Board Certificate in the clerk's office of said County or City, and, likewise, that a penalty be provided for neglect upon the part of applicant or Commissioner to meet the requirement.
2. An enactment providing for the serving and enforcing of an injunction against those having been convicted of illegal practice, who attempt to continue such practice.
3. An enactment making it unlawful to advertise medical practice, drugs, or appliances, by statements exaggerating the potency of such practice, drugs, or appliances, or having a tendency to deceive, or defraud the public, as relates to the care or treatment of disease or disability.

Dr. Preston suggests, in the event a revision should be undertaken, a perusal will show that a proper punctuation of certain passages together with slight changes in wording would in a measure clarify the Act.

Dr. Ennion G. Williams, State Health Commissioner, in reply to my request for suggestions improving the Medical Practice Act, has this to say:

"I have been thinking about your request for suggestions for improving the Medical Practice Act. It would seem to me that this request would include any changes that might be made regarding the duties of the State Board of Medical Examiners. As I understand, their principal function is to safeguard the people against parties not qualified to practice medicine. If they are to safeguard the people against improperly qualified practitioners, it would seem that their duties and authority would extend to seeing that the people were adequately supplied with properly qualified practitioners; or, in other words, that the possibilities offered by the science and art of medicine should be made available to all the people of the State.

"At the present time much suffering could be relieved and life prolonged by the use of knowledge known to the medical profession. It should be the function of some official agency of the State government to make available to all the people what the medical profession offers. In some communities the doctors are not available. In some communities there are doctors but the people have not the finan-

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cial resources needed to secure for themselves the services of a doctor. This does not mean that the people are paupers or entirely without financial means, but that their finances are not such as to meet the requirements of the doctors for rendering service.

"As the State contributes largely to the education of a doctor, should not the State see that possibilities of medicine are made available to all the people? If the State Board of Medical Examiners is entrusted with safeguarding the people against unqualified practitioners, should it not also see that the advantages of curative medicine are made available to all the people?

"This is a problem that should be taken up for consideration by the State Board of Medical Examiners, some other official organization, or by the medical profession through its organizations. For one reason or another, the people are not securing the wonderful possibilities that the science and art of medicine offers.

"I recognize the fact that the State Board of Health might have some responsibility in this matter. We have been endeavoring to meet it in a small way but in our efforts to do so we are not receiving the co-operation of some members of the medical profession. This is a problem that must be solved; and, if the medical profession or the official agencies will not co-operate with us in reaching a solution, I fear that volunteer and unprofessional associations will solve it in a way that will not be satisfactory."

The changes suggested by Dr. Preston will add materially to the strengthening of our present law.

Points brought out in Dr. Williams' suggestions are to me very important ones. I believe that the State Board of Medical Examiners should have absolute control and authority in regulating the practice of medicine, with sufficient power to act when emergencies arrive, such as Dr. Williams suggests.

A Committee at this session of the Medical Society should be appointed for the purpose of drafting proper amendments to the present Medical Practice Act and report at the meeting of the Medical Society next year, the Society as a whole to pass on the entire bill.

2210 *West Grace Street.*

Papers by Dr. Hodges and Dr. Stephenson were discussed in the House of Delegates of the Medical Society of Virginia, report of which appeared in the November MONTHLY.

THE PRESENT LABORATORY TECHNICIAN SITUATION IN THE STATE.*

By CHARLES PHILLIPS, M. D., Richmond, Va.
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Last year at the State Society meeting there was a brief discussion of the present activity of the State Board of Health in doing so many Wassermann tests free for the physicians. This followed a criticism of the State Board for cutting so deeply into the earnings of private laboratories which formerly looked to considerable income from Wassermanns. Among the questions raised in the minds of some were those related to just who conducts these tests in the State and how reliable are laboratory technicians in general. The writer has recently undertaken a brief survey of the whole situation and here gives a simple resume of the study.

The American hospital directory lists about 95 hospitals in the State and most of these were sent questionnaires asking for data about their technicians. One hundred letters were sent out to hospitals and to a few city and private laboratories. Fifty-three replies were collected and tabulated. With only about half of the State covered, deductions from these figures would appear inaccurate, and here only approximate values are claimed. Information gathered from other sources supplements the questionnaires to a point where this study actually about represents the present situation faithfully.

It is estimated that there are about 80 laboratory technicians at work in the State. There are about 20-25 men and 50-60 women, or more than twice as many women as men. They work an overage of 7¾ hours a day. The data collected shows an average pay of $116 a month for all kinds of technicians, and among them those on duty in hospitals and private laboratories get $106 a month, some with and some without maintenance, which often amounts to $40-$45, a month extra. Some technicians employed in several public health laboratories have administrative duties, and their pay is considerably above the average, in some cases being around $200 a month. Apparently the lowest paid technician in the State gets $25 a month and maintenance plus treatment for his tuberculosis in a sanatorium, while the highest is a capable public health city laboratory director and gets $225 a month.

Laboratory technicians in Virginia may find

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work in one of three places—in a small private laboratory maintained by one or more doctors, in hospital laboratories, or in public health laboratories. Their hours of duty are much the same but the things they do vary considerably, with a tendency to better pay in the latter group. The small hospital of 50 beds or below often assigns other duties to its technicians, and one place is reported where the superintendent of the hospital is also a laboratory technician. Some of these teach the nurses, some do anesthesia, some take histories and records, and quite a number combine X-ray technical work with clinical pathology.

You might ask where they were trained. This study shows the majority trained within the State either at the University of Virginia, the Medical College of Virginia, or in some of the larger hospital laboratories. There are several trained abroad, several in the Army or Navy, and some at northern medical schools or hospitals. Four report training at the Gradwohl School of Laboratory Technic at St. Louis. Many have gotten their start as understudies in regularly established laboratories in larger hospitals. In a few instances physicians are doing technician's work and being paid in various ways. The Army and Navy hospitals use their enlisted personnel assigned for this work. The State insane hospitals have such work done by their own medical staff. This study has as far as possible limited the term technician to those not doctors. From the returns of this questionnaire, it is evident that most of the technicians in our State have been doing laboratory work from 4 months to 15 years, the average being below 4 years, which suggests that, as a rule, the kind of results we are getting ought to be reliable if exprience counts for anything. In some instances, however, we note that the quickly trained persons work in small hospitals not usually having the services of a pathologist for supervision of the laboratory. This is an obvious danger point.

Of the questionnaires returned, only 17 laboratories out of probably a hundred or more in the State do the Wassermann test, and this includes the State Board laboratory and those of several large cities. Apparently, most of the hospitals in the State with over 100 beds, except those belonging to the State, conduct their own Wassermanns. Many of the smaller ones do not find it practicable to do their own work and either send them to a nearby pathologist or the State Laboratory. This survey of the State conditions shows incidentally how widespread is the patronage of the State Laboratory by physicians in having free Wassermanns done. This confirms the opinion given a year ago that this test as a source of income to private pathologists is of decreasing value. Whether this carries a warning for future extension of activities of this State department is a matter for personal opinion. There is one thing certain that this Wassermann service does, and that is to furnish an accurate and well-conducted test to many small institutions that might otherwise have considerable variations in results due to unstandardized technic by more or less unsupervised technicians.

One result of this study is to show that quite a group of these workers are what the writer sometimes calls hybrid or mixed technicians in that they have other duties than strict clinical pathology. The duty most frequently reported is in X-ray work. There is a moderate demand constantly for such people and they find work usually in small hospitals. Sometimes this is thought to bring extra pay, but this survey does not show that if it is really true. The writer feels that, unless of long experience and training, the mixed technician is not apt to be as keen in either field although perhaps of considerable usefulness to the hospital needing one person to do both kinds of technic. The combination of clinical pathology with anesthesia ought not to exist, because of the belief than an anesthetic ought not be given except by physician or trained nurse. At the Medical College of Virginia, we steadfastly refuse to allow this combination either in our technicians or students. We know of a few places where the laboratory technician does some clerical work in case history taking, and a few instances where she conducts basal metabolism tests and even electro-cardiographic technic. These supplementary things are usually learned by understudy. Those hospitals which help to make up the number of small units in our more than 13,500 hospital beds in the State certainly ought to have some way of getting carefully trained and competent laboratory technical service without having to pay too much for it, or employ so many persons to do it. Here there is no relief to be had from the State Depart-

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ment of Health, and the profession must develop its own workers.

The foregoing may fairly be deducted from this State-wide survey, but it is not amiss here to comment briefly on certain problems before us now. There comes to mind at once the question of the training that our laboratory technicians have had, where and how they got it, what did it include and just how reliable ought their findings to be. To answer this in detail would take too much time, but a study of our State reveals a situation rather typical of the whole country, and one function of our State Medical Society is to know the local situation fully.

Just as laboratory technicians may find work in one of three kinds of laboratories, so they may be trained in the same way by more or less unorganized apprenticeship without careful teaching. In many of the larger laboratories, this method, while uncertain as to time, usually turns out a reasonably good product because of the amount of material to work on and the experience of the supervisors. However, not all larger hospital laboratories are equipped, nor are willing or capable of undertaking general laboratory training of students. For instance, a public health laboratory does not usually do much clinical pathology although a great deal of other work. There does not seem yet to be much tendency for those other than the medical profession to take up training of technicians. There was at one hospital in the State until the past six months a short laboratory course of 4-5 months, directly under a non-medical man, although an integral part of a well conducted hospital with a capable staff. A study of its announced program, methods, length of study and supervision would cause a question about the value of its graduates. The same might be said of the Gradwohl School of Laboratory Technic in St. Louis, although such training, when closely organized and supervised, ought undoubtedly to give the student rather quick information. There is, of course, the fundamental objection to the obvious lack of practice and the handling of actual patients and material which such schools often cannot supply. We require our medical students to spend much time with patients, and often after graduation to take a practice year as an interne; why not a period of practice for laboratory technicians? Then, too, the type of student to be obtained by advertisement is just as heterogeneous as that going to the chiropractic schools. Such places usually have a medical director or fairly close medical supervision. The regular medical schools of the country and of our State have been slow to take up laboratory technic as an integral part of their teaching program, although engaged for a long time in training technicians by the apprenticeship method. The University of Virginia Hospital has a regular laboratory technician class, well chosen, well taught and supervised by the medical faculty. The Medical College of Virginia has just this session started such training as a part of its program of State service by giving to a limited number of well chosen persons a two year course to include all branches of general laboratory work except X-ray. The students are matriculated in the college and are taught by the faculty. This is too new to tell of its success. The Director of the State Laboratory has for some years been quietly taking in selected students in this laboratory, and in training them there has done his part in helping to see to it that laboratory technicians are a quality product rather than quantity and cheap. He and the Medical College of Virginia have been close friends in this and worked together to give a more rounded development. The few private pathologists in the State have also done a quiet but usually effective work in assisting in the training of laboratory technicians.

Perhaps the most important thought of all is now here, and concerns vitally the profession and its clientele. This is, just who controls the situation, the technicians or the physicians. It is manifest that they work with and for us, but just how far may we or do we use their results. Obviously, to a large extent we incorporate their results in the medical handling of our cases, but do we patronize, encourage, direct and supervise their results as closely as we ought. Where there is a pathologist there is usually competent supervision and control, but how about the work of the small hospital? The New York Board of Health has a system of control of laboratories by licensing those doing work of a public health nature. I do not want to see this started here, although. if the profession does not interest itself more in all phases of this growing problem and assist more intimately in its control, it might be necessary for the public health authorities to take a hand. The

State Laboratory with its efficient service is already a blessing to some small institutions and to numberless other cases, but if this State department farther enters the fringe of the practice of medicine, where is it to stop? None of us working with or employing laboratory technicians want them kept down to mere manual workers, but they must be supervised and not allowed to interpret results too much. Apparently the State situation is healthy now, but if the physicians lose grasp of their part of this system, it is easy to see how trouble will result. Already these technicians compare favorably in skill, training, hours and pay with school teachers and trained nurses, and if our medical schools will enter the training field more largely, the future welfare of our State is safe so far as the laboratory technician is concerned.

SPONTANEOUS PNEUMOTHORAX—WITH REPORT OF CASES.*

By H. B. MULHOLLAND, M. D., and J. C. FLIPPIN, M. D.
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From the Department of Internal Medicine, University of Virginia Hospital.

The term "spontaneous pneumothorax" has been used to designate two general groups of cases; one in which collapse of the lung occurs in individuals with definite disease of the lungs, and the other in which this condition is precipitated in apparently healthy persons. It is our intention in this paper to deal mainly with the latter type.

For the sake of clarity it might be well to enumerate the causes given for collapse of the lung. It may develop during the course of a full-blown pulmonary tuberculosis, from rupture of a cavity or tearing of an adherent pleura. During septicemia with subsequent multiple abscesses of the lung, occasionally rupture of one of these will result in a pyopneumothorax. Cases have been reported following the swallowing of small particles of glass, bone, etc.,[1] leading to puncture of the lung through the posterior wall of the oesophagus. A case has been reported by McGuire[2] in a patient with asthma. Scattered cases have been reported in infarction of the lung, pneumonia, and influenza. In the group with which we are especially interested the condition is thought to be brought about in one of three ways: 1. Rupture of a sub-pleural tubercle; 2. Pulling away of a pleural adhesion; 3. Rupture of an emphysematous bleb. The latter factor is probably rarely important, for we do not find this condition in patients with marked emphysema. Unusual exertion is an important predisposing factor in some of the cases.

The following group of cases have been selected from a series seen by us in the past few years:

Case I.—P. K., age 21, male, student, admitted to the University Hospital, October 10, 1923.

F. H.—Unimportant.

P. H.—The patient had always been perfectly healthy and no previous history of pulmonary infection could be obtained. He had had a slight cold two weeks before admission, with only a moderate cough, which had persisted up to the time of admission.

P. I.—Early in the morning of the 10th, while dressing, he had a sudden feeling of oppression beneath the sternum. An aching pain gradually developed and radiated out towards the left side of his chest, increasing in severity. He went to class, but found that on walking he got very short of breath, and would have to stop and sit down about every one hundred yards.

P. E.—Patient seen on the night of the 10th, lying quietly in bed on the right side. Respiration 18. Pulse 100. The apex of the heart could not be seen or palpated on the left side, and a hyper-resonant note was obtained over the cardiac area. Cardiac dullness began at the left sternal margin, and extended 1½" to the right of the sternum, where the heart sounds were most plainly heard. The whole left chest was practically immobile from apex to base, and there was a distinct bulging of that side. Fremitus was markedly decreased or absent over the whole left side. Percussion gave a tympanitic note, except beween the scapulae behind. Breath sounds were distant except close to the sternum, where there was an amphoric quality to both inspiration and expiration. Whispered and spoken voice had a distant metallic quality. The right side was clear except for emphysematous breathing.

The impression was that the patient had a complete pneumothorax involving the left side, which was confirmed by X-ray.

Course.—The patient remained in the hospital until November 20, during which time he had practically no temperature. Sputum negative for tubercle bacilli. Thirty-nine days after admission stereoscopic plates of his chest showed the left lung to be perfectly expanded, with no evidence of pathology of any kind in the chest, nor could such evidence be obtained on physical examination.

The patient remained perfectly well until the latter part of August, 1925. At this time, while surf bathing, he again experienced the symptoms as enumerated above, although not as marked. He was seen by one of us on September 1, 1925, and a diagnosis of partial pneumothorax, left side, was made, which was confirmed by X-ray. Discharged in nineteen days with no abnormal physical signs.

Again, periodic chest examinations were entirely negative. Patient readmitted March 5, 1926, having experienced same symptoms while walking up a very steep grade at the University. Partial pneumothorax, left side, with re-expansion of the lung in a short time and negative physical examination.

Subsequent to this the patient took unusual care of himself, but on April 3, 1926, he was again admitted, with much the same symptoms as on his first

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admission. Physical signs of complete pneumothorax were again found on the left side, being confirmed by X-ray.

The lung did not come up as quickly as before and the patient remained in the hospital for three months. On discharge, stereoscopic plates and physical examination did not reveal any evidence of tuberculosis. He was, however, advised to temporarily discontinue his studies and take the "cure." A recent report states that he has been perfectly well and has gained twelve pounds during the summer.

Case II.—R. D., age 22, male, student, admitted March 8, 1918.

F. H.—Negative.

P. H.—Excellent, with no symptoms suggesting pulmonary tuberculosis.

P. I.—The patient was rather under the average size, and, being anxious to enter the aviation service, he had been accustomed to taking walks, during which he would expand the chest and breathe deeply in order to develop his expansion. He had just returned from an evening class, and from his deep breathing exercise, when he felt a sharp shooting pain in his right side. This pain was worse upon taking a deep breath. He felt somewhat faint, but not especially ill; indeed, he was able to go to the movies. Feeling worse about twelve o'clock midnight, he came to the hospital.

P. E.—Showed a pneumothorax, left side, confirmed by X-ray. Subsequent X-ray examination showed a suspicious right apex, with a few healed tubercles.

Course.—Patient was later accepted by the army in spite of his history and contrary to our advice. It is known that he was later sent to Denver as a tubercular patient by the Veterans Bureau.

Case III.—W C. H., age 23, male, student admitted May 28, 1926.

F. H.—One brother died of tuberculosis.

P. H.—Good health. The patient has had a chronic cough for two years, which he attributes to cigarettes.

P. I.—Patient was seized with a sense of oppression in the left chest and aching pains across back and in left side, neck and shoulder. These were so severe that he was forced to sit down and pant for breath. Unable to rest very well except on right side. He got up, however, feeling much better, and went about his work for three days, with only slight dyspnœa and pain in left shoulder and precordium until an examination by the medical resident revealed a complete pneumothorax, left side. After the lung had re-expanded, stereoscopic plates suggested an old tuberculosis of the right upper, although no physical signs could be elicited. On the strength of these findings, he was sent to Saranac Lake.

Case IV.—W. C. P., age 28, male, salesman, seen by one of us in consultation in December, 1922.

P. H.—Had always been healthy and worked hard.

P. I.—Had been seized with substernal pain, and shortness of breath while in the bath tub.

Physical and X-ray examination showed a complete pneumothorax, left side.

Course.—The patient has had no trouble since his attack. He works hard, and his weight has remained about the same. Chest examination recently revealed no abnormality.

Case V.—J. D., age 21, male, agent, seen in consultation in 1921.

P. H.—Of no importance, except that while playing baseball the year previous to his attack he was hit in the right chest, and treated for a broken rib.

P. I.—He was seized with a sudden sub-sternal pain and dyspnœa, during a fit of hysterical laughter, the patient being one of these jolly individuals whose laugh can be heard some distance.

P. E.—Showed a pneumothorax of the right side, which was confirmed by X-ray.

Course.—Following this attack, he was easily tired, and he went out on a ranch in Wyoming to recuperate. While there he played baseball, and rustled cattle, taking the most violent exercise. He recovered his usual good health in about a month and since that time has been wrestling and swimming. He states that he now feels "100%."

Case VI.—H. F., age about 23, male, dealer, seen in consultation in February, 1926.

P. H.—Unimportant.

P. I.—Two days before examination, he developed a pain in his chest and cough. He was examined by his family physician, Dr. H. T. Nelson, who found no abnormal signs. Two days later, on account of persistent symptoms, an examination revealed a left pneumothorax, confirmed by X-ray.

Course.—Subsequent chest plates negative, and patient has been perfectly well.

Case VII.—R. B., male, age 6½ months, admitted March 5, 1926.

F. H.—Unimportant.

P. H.—Healthy up to January, 1926, when he had otitis media. His ear stopped draining in a few days, and he was discharged. He later developed a swelling behind this ear, and he was readmitted for a mastoid operation. He did nicely for a few days and then began running a septic temperature. Sinus thrombosis suspected and proved. Sinus opened and packed with iodoform gauze, and later right jugular vein ligated. The patient recovered from this operation, but several days later he went into a condition of shock, with labored respiration and cyanosis. The left side of the chest was hyper-resonant, with absence of breath sounds. Physical and X-ray examination showed a complete pneumothorax of the left side. Death occurred eighteen days after admission. Autopsy refused.

Discussion

Case I presents a rather unusual condition, a recurrent spontaneous pneumothorax over a period of three years' observation in an apparently healthy individual. Marsak and Craighead,[3] in 1917, collected forty-three cases from the literature. Hawes,[4] in 1922, reports a case first seen in 1917 with recurrent bilateral pneumothorax, and no definite evidence of tuberculosis. Our case is somewhat similar to that reported by Hamman.[5] His case, after four years' observation, with repeated attacks, had developed definite pulmonary tuberculosis, although, when first seen, there was no such evidence. Cases II and III we think may be regarded as definitely tuberculous. Cases IV and V are interesting because of negative chest findings, and a subsequent history of good health. Case VI is similar to the last two, with the exception that we did not have a long period of observation after the attack. Case VII is included, first, because of the age, although similar cases have been reported in very young children, and, secondly, for the reason that we believe it represents the type following rupture of a sub-pleural abscess. Of

course, without autopsy, this can only be a conjecture, but we believe that the other findings in this case are at least suggestive of this condition.

It might be of interest to call attention to an article by Bendove,[6] in which he states that, in his experience, amphoric breathing is heard only in spontaneous pneumothorax, and not in the artificial type unless spontaneous pneumothorax supervenes. The mode of production of this physical sign has long been a disputed question. This author believes that it is dependent upon air entering through a perforation of the lung, setting up vibrations of the air in the pleural cavity. In cases caused by a needle puncture, this sign was most intense at the point of puncture. The coin test, which is used most extensively in the diagnosis of this condition, was present, in his cases only when the pressure in the pleural cavity exceeded that of the atmosphere. He concludes, therefore, that blowing amphoric breathing and the persistence of this sign indicates a fistula, with a consequent poor prognosis; contrarily, disappearance of amphoric breathing denotes closure of the perforation, and also that diminution of the coin sound is indicative of re-expansion of the lung.

Our cases follow the general rule in that the condition is most often found in males, perhaps due to the greater stress upon the lung tissue, consequent to activity. The prognosis, as is indicated in this series, is excellent. Although aspiration of air is advocated by some authors, we did not feel that any of our cases required this procedure.

Most cases, if followed for a sufficient length of time, will develop pulmonary tuberculosis. Therefore, we believe that they should be warned to take the proper care of themselves, not only in this connection, but to guard against over exertion to prevent recurrence of the condition.

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THE TREATMENT OF GENERAL PERITONITIS AND ALLIED CONDITIONS.*

By JULIAN L. RAWLS, M. D., F. A. C. S., Norfolk, Va.

I have included in this discussion cases in which there was a fairly general peritonitis with little attempt at limitation; cases which under ordinary circumstances should have developed general peritonitis, and cases of intestinal obstruction.

It is not my thought that I am bringing anything new or original to the treatment of these cases. I only wish to emphasize the line of treatment which has been worked out by others and which has given rather good results in our hands in a limited number of cases.

My purpose is to outline very briefly the plan of treatment we have adopted and to give you, even more briefly, a short history of some of the cases in which it has been used.

The plan of treatment consists in an absolute withholding of all fluids by mouth until the abdominal symptoms have subsided, this sometimes taking from a week to ten days: and of the giving subcutaneously, daily, of from 1,000 to 3,000 c.c. of normal saline to which has been added .33 gms. of novocaine per 1,000 c.c. to relieve pain. In the intestinal obstruction cases, where there is an increase in the urea content of the blood and a decrease in blood chlorides, the strength of the normal saline is frequently doubled, and with the addition of novocaine to the solution this does not produce any undue pain. We give frequent gastric lavage if there is any tendency to the accumulation of fluid in the stomach. We do not wait for the patient to actually begin vomiting in these cases. If there is any suspicion of a retention of fluid in the stomach, we anticipate the vomiting by the introduction of the tube. Frequently we obtain more than 1,000 c.c. of offensive, yellowish material when the patient has not vomited at all. Lavage is an absolute life-saver in these cases. If the vomiting is persistent or would require the frequent passing of a stomach tube, a duodenal tube is introduced into the stomach and fastened to the cheek with a piece of adhesive plaster. This is allowed to drain into a basin and the stomach is washed out at frequent intervals through this tube with a soda bicarbonate solution. In addition to the treatment outlined, we give each day not less than 10 gms. of glucose intravenously. Originally we

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XUM

used a preparation prepared by the hospitals and given in normal saline; but there was some difficulty in getting it properly autoclaved, so for the last year we have used 10 gm. ampules put up in 20 c.c. of water and sold by reputable drug houses. The contents of the ampule is sucked up cold in a 20 c c syringe that is still warm and the fluid without dilution injected directly into the vein. We have had no trouble with it in any way and we have not had the chills and rise of temperature that so frequently followed the administration of the solution prepared in hospitals and given in larger bulk. This has some food value and also acts as a kidney stimulant.

The surgical condition in the abdomen, of course, is treated by the usual surgical means: that is the repair of perforations, the releasing of obstruction, an enterostomy when indicated, and the establishment of drainage No case has been treated expectantly, although cases have been tided over a day or two under treatment until they became better operative risks. We have made no attempt to flush out the abdomen as advocated by Murat Willis a short time ago. In some instances we have used suction to remove accumulations of fluid but no substance has been introduced into the abdominal cavity. We have contented ourselves with attempting to increase the patient's resistance in order to enable him to overcome his own infection.

The following case reports demonstrate the type of cases in which we have used this treatment, and the results obtained:

J. McC., age 52 years, admitted to the King's Daughters Hospital, March 29, 1925. He had a bullet wound of the abdomen, one of his left arm and one of the buttock. He was operated on immediately and three perforations of his lower ileum repaired. His abdomen was closed with drainage and he was given tap water by bowel and saline subcutaneously. He ran a perfectly normal temperature and pulse rate until April 5th. when he had a slight elevation of temperature due to a stitch infection. He had no vomiting following his anesthetic, and as he was taking liquids on his fourth day it was not necessary to give him any glucose. He was discharged on April 19, 1925. as cured.

L. S., age 20 years, admitted to the King's Daughters Hospital, November 15, 1925. He had a gunshot wound of the inner side of the right groin. The bullet had passed through the right side of the scrotum and entered the thigh just to the inner side of Scarpa's triangle. An X-ray showed the bullet in the pelvis. At operation seven perforations through the lumen of the bowel and four in the mesentery were repaired. There was a large amount of free blood in the abdomen and the bladder was empty. Apparently there was a perforation in the bladder behind the peritoneum since none could be found from the inside of the abdomen. The bullet was lying free in the cul-de-sac. He was given glucose intravenously and 2,000 c.c. of saline subcutaneously for several days and liquids by mouth were withheld. The morning following the operation he was leaking urine through the wound in the groin. A catheter was anchored in the bladder through the urethra. By November 20th his abdominal disturbance had entirely subsided and he was allowed fluids by mouth. His urinary leak persisted for some time but gradually stopped and he was discharged from the Hospital as cured December 24, 1925.

A. J., age 18 years, admitted to St. Vincent's Hospital on April 20, 1924. This girl was brought to the Hospital by the patrol with a bullet wound of the abdomen just above the symphysis and to the right of the midline. She had a marked rigidity all over her abdomen but was not very badly shocked. She was operated upon one hour following her injury. At operation, thirteen perforations were found in the lower ileum and one in the bladder. A resection of eighteen inches of bowel with an end to end anastomosis was done and the perforation in the bladder repaired. The abdomen was drained and a catheter introduced into the bladder hrough the urethra. The next morning her temperature was 103 and her pulse 120. By April 25th her temperature was normal and her pulse rate was 100. From then on she began to present the picture of a general peritonitis. Her temperature was 103 axillary and her pulse from 130 to 140. Gastric lavage returned a large amount of offensive yellow material. At that time the ampules of glucose were not obtainable and the glucose used was dissolved in 250 to 300 c.c. of normal saline and given intravenously. This was repeated each day with saline subcutaneously. She required gastric lavage three and four times in twenty-four hours to keep her stomach empty. As she took the tube well, a

permanent drainage through a duodenal tube was not instituted. Her symptoms of general peritonitis gradually subsided, but on May 9th she complained of pain in her right flank with tenderness and rigidity in that region, accompanied by a rise of temperature. We thought she was developing a perinephritic abscess and she was given 20 c.c. of a 1 per cent mercurochrome solution intravenously. She had a chill, her temperature went to 105.2, pulse 130, respiration 40, and she had several bowel movements during the night. Following this, she had a prompt disappearance of all of her symptoms and was discharged from the Hospital on June 2, 1924, as cured.

R. H., age 38 years, admitted to St. Vincent's Hospital, May 30, 1926. He was brought in the Hospital by the patrol a short time after having been shot with a steel jacketed bullet. He had one gun-shot wound just above the symphysis pubis. He was very drunk and practically free of symptoms of abdominal injury. He had no rigidity and his pulse rate was 96. He was operated on immediately and twenty-three perforations of his small bow were repaired. An enterostomy was done and a tube was left in the bowel about six inches above the last perforation. The bullet left the abdomen where the peritoneum is reflected off the bladder in the cul-de-sac. It was not determined at the time if his bladder was injured. The next morning his dressing was saturated with urine and he had not voided, so a retention catheter was introduced into the bladder through the urethra. He was given from 2,000 to 3,000 c.c. of saline subcutaneously and 10 gms. of glucose intravenously each day until June 3rd. As he did not vomit at all, no gastric lavage was resorted to. On June 3rd he was allowed water by mouth and by June 7th he was on a full liquid diet. His temperature and pulse rate were normal by June 10th, and he had no subsequent rise. On June 11th the catheter was removed from the bladder and there was no further leakage of urine. The enterostomy tube was removed on June 14th, and the fistulous tract promptly closed. He was discharged from the Hospital on June 25th, 1926, as cured.

R. R., age 7 years, admitted to the King's Daughters Hospital, May 14, 1925. His illness dated from May 3rd. He had had intermittent pain in his abdomen, followed by vomiting. His condition gradually became worse and a physician was called on the day of his admission to the Hospital. His people were Christian Scientists, which probably accounts for the delay. He had a marked rigidity over his entire abdomen, with distention, a white blood count of 17,000, his pulse rate was 140 and his temperature 104. He lay on his left side with his knees flexed and seemed to be in severe pain. He was operated upon with a diagnosis of peritonitis following appendicitis. We found a complete obstruction of the small bowel. Neither the appendix nor caecum could be found. No mass of an intussusception was found. The anesthetizer reported that the boy's pulse rate was 170 and his general condition very bad. An enterostomy was hurriedly done and the tube brought out through a stab wound in the abdomen. One rubber drainage tube was inserted to the bottom of the pelvis. Nothing was given by mouth. Saline was given subcutaneously. Since his veins were small and hard to puncture and he was exceedingly hard to control, glucose and soda were given him by bowel. He had a very stormy convalescence, but by May 23rd his temperature and pulse rate were normal, he was taking food by mouth and having satisfactory bowel movements from enemas. He was discharged from the Hospital June 3, 1925, as cured. He probably had an intussusception which corrected itself after the back pressure was relieved.

C. H. B., age 45 years, admitted to the Norfolk Protestant Hospital, November 18, 1925, and discharged December 23, 1925. He was first seen at 4 A. M., complaining of intense pain in his abdomen, requiring half a grain of morphine to relieve him. The diagnosis at that time was a probable rupture of gastric ulcer. When next seen at 8 A. M., he was sitting up partially dressed and stated that his pain had radiated to his back. He had not vomited. He had a frequent desire to void but could only pass a few drops of urine at a time, and this was very painful. His picture at the second examination was one that resembled kidney colic rather than an abdominal condition. He stated that up to one week ago he had been well; since then he had had some pain in his abdomen and had vomited once five days before. His past history was negative except that he had had typhoid fever years ago and had been treated for ulcerated gastritis about ten yars ago. On his admission to the Hospital at 8 A. M., his temperature was 99, pulse 160, W. B. C. 16,000, polys 84

XUM

per cent. His urinalysis was negative, his B. P. 93/62. He had marked rigidity over his entire abdomen. An X-ray of his G. U. tract was negative for calculus. At 4 P. M., his temperature was 102.3, pulse rate 100. He had not vomited. He was operated upon with a pre-operative diagnosis of ruptured gastric or duodenal ulcer. His abdomen was found full of thick yellow fluid, but no perforation was found in either the stomach or the first portion of the duodenum. Several loops of bowel were found matted together and surrounded by the free border of the omentum. An attempt was made to find the perforation, but as the patient's condition was not good, the abdomen was drained without a prolonged search for it. He was put to bed and given 2,000 c.c. of saline under his breast and 10 gms. of glucose intravenously. The glucose was continued until November 22nd when he was allowed liquids by mouth. After about twelve days he developed a fecal fistula which was apparently due to pressure from one of the drainage tubes which had been inserted into the abdomen at the time of the operation and not from the original perforation. The tube was removed and the fecal leak promptly stopped. He did not vomit at any time and did not require a gastric lavage. His convalescence was fairly smooth. He left the Hospital on December 23, 1925, and has been examined since and found to have a reasonably firm abdominal wall.

Mrs. M. S., age 57 years, admitted to St. Vincent's Hospital, February 9, 1926, and died on March 30, 1926. She was operated on with a diagnosis of acute intestinal obstruction. At operation an intestinal obstruction was found secondary to a fairly general peritonitis, apparently arising from some pelvic condition, probably a ruptured diverticulum of the sigmoid. An enterostomy was done. She was given 3,000 c.c. of normal saline a day, and 20 c.c. of 50 per cent glucose intravenously each day until she became saturated with fluid, when the amount of saline was cut down. She had gastric lavages once or twice a day, a large amount of offensive, yellow material being returned through the tube at each washing; consequently, a duodenal tube was passed on her and anchored in place. She drained freely from this tube and the stomach was occasionally washed out through the duodenal tube without removing it. On February 15th. it slipped through into the duodenum and began to drain straight bile, so it was removed. There was no occasion for replacing it. From then on she was given liquid diet by mouth and finally soft diet. Her abdominal symptoms cleared up except that after her enterostomy tube was expelled, she continued with a fecal fistula which required dressing two or three times in the twenty-four hours. Her temperature had been normal for about two weeks and we were contemplating sending her home, to return later and have her fistula closed. She had been having normal bowel movements for some time. On March 20th, she developed a pain in her right chest with a slight cough. She had a chill during the night of the twenty-first, and on, March 22nd, her temperature went to 104, her pulse 120. There was very little increase in her respiratory rate. An X-ray of her chest showed a wedge-shaped consolidation of the upper lobe of her lung. She died on March 30, 1926, of her pulmonary infarct. Her abdominal condition apparently was progressing to complete recovery. No autopsy was obtained.

M. M., colored, age 36 years, admitted to the hospital on November 30, 1925, and discharged as cured January 22, 1926. She was operated on December 5, 1925, for uterine fibroid and tubo-ovarian abscess. Her pelvic organs were removed. A loop of small bowel was found adherent to the inflammatory mass in the pelvis. This was freed, wrapped in hot gauze, and returned to the abdomen with the intention of whipping over the raw surface after the oozing had stopped at the end of the operation. The patient did not stand the operation well and a rather hurried closure of the abdomen was made without closing over the denuded area on the bowel. She continued to vomit following her anesthesia. On December 6th, one day post-operative, the nurse charts that she vomited a large amount of yellow fluid, and that record is repeated at frequent intervals. She was given gastric lavages, fluid under her skin and glucose and soda by bowel. On December 10th, as she had gone twenty-four hours without vomiting, she was allowed a small amount of hot tea by mouth. She had no further vomiting, but began to talk at random and attempted to get out of bed. On December 12th her blood urea nitrogen was 60 mgm. per 100 c.c. of blood and her blood chloride .225 per cent, showing a definite increase in blood urea and decrease in blood chlorides. A duodenal tube was intro-

duced into the stomach and drained away a large amount of thick yellow fluid. The tube was anchored in place and dripped continuously this same offensive yellow fluid. She was given glucose intravenously and saline subcutaneously. We felt reasonably certain that she had a definite intestinal obstruction but her abdomen was perfectly flat, her temperature did not go above 99, nor her pulse rate to 100. On December 15th, a distinct peristaltic wave could be seen, which stopped always at a given point on her abdominal wall. Under a local anesthetic this spot was investigated and the piece of denuded bowel was found adherent to the abdominal wall. It was interesting to note that the free border of the omentum was between the bowel and the anterior abdominal wall. Under ordinary circumstances, we would have expected this to prevent an adhesion between the bowel and the parietal peritoneum. This patient, then, was apparently kept alive for one week with an intestinal obstruction by the use of saline subcutaneously, glucose intravenously and the constant drainage of the duodenal tube. At the second operation the bowel was freed and an enterostomy opening was made above the point of obstruction. Her recovery was uneventful.

M. P., colored, age 56 years, admitted to the Hospital June 7, 1926. On her admission, the physical findings were—a rather thin colored woman, restless and uncomfortable, tongue dry, abdomen distended and tympanitic. There was a general tenderness all over her abdomen but no marked rigidity. No mass was felt Her white blood count was 10,000, her blood urea was 35 mgm., her blood chlorides .22 per cent. The following morning, under a novocaine anesthesia, her abdomen was drained. There was a large quantity of free fluid in her abdomen, and practically all of the small intestine was distended and dark. An enterostomy was done, no attempt being made to find the site of the obstruction. She had been ill six days before her admission to the Hospital. She had a pain in her abdomen and had vomited once or twice every day since. She had had no bowel movement, and enemas had returned clear. Following her enterostomy, she was given 10 gms. of glucose intravenously for two days, and 2,000 c.c. of saline subcutaneously for three days. At the end of that time she was taking water by mouth without discomfort. Her convalescence was uneventful until June 23rd, when she developed a temperature of 102 and a pulse rate of 110. At that time she was having from one to three voluntary bowel movements a day. She began to complain of pain in her pelvis, and a pelvic examination revealed a fluctuating mass in the cul-de-sac. This was drained on June 29th, and she was discharged from the Hospital on July 18, 1926, without subsequent trouble.

Mrs. B. L., admitted to the Norfolk Protestant Hospital, May 1, 1926, with an infected, incomplete abortion. At the time of her admission, she had a temperature of 102.3 and a pulse rate of 120. She was operated upon the same day. Her physician did a D and C and she was packed. She ran a fluctuating temperature and, on May 22nd, she was operated upon the second time. This time a left tubo-ovarian abscess was drained and her appendix was removed. Following this operation, she had a very stormy convalescence, her temperature at one time going to 104.3, and her pulse to 150. She had vomiting at irregular intervals and was quite sick. I first saw her on June 12th, when a definite diagnosis of intestinal obstruction had been made by her attending physician. There was a distinct mass high up on the left side of her abdomen. Under a novocaine and gas anesthesia, this was explored and loop of small bowel was found adherent to the anterior abdominal wall. There was distended bowel above this point and collapsed bowel below it. In freeing the adhesion the bowel perforated. An enterostomy tube was introduced into the bowel through this perforation and the abdonten closed with one outside drain. She was given 300 c.c. of 10 per cent glucose intravenously for several days. She was very ill, talking at random, and voiding involuntarily. Her pulse rate was steadily above 120, and her temperature on one occasion went to 105. Her symptoms gradually subsided and she was discharged from the Hospital on July 15, 1926, with a normal temperature and pulse and her abdominal wound practically healed.

J. J., colored, age 41 years, admitted to St. Vincent's Hospital, June 4, 1925, and died July 1, 1925. When transferred to my service, a definite diagnosis of duodenal ulcer had been made on him from history and X-ray findings, and he was referred to me for operation. In view of the final results in this case, it is interesting to note that the interne's physical

XUM

examination states that the left side of his chest showed sonorous rales, probably asthmatic. My associate, Dr. B. A. Doggett, did a posterior gastroenterostomy on him and removed a chronic appendix on June 10th. On June 12th, his temperature went to 104, his respiratory rate was 60, pulse 130. From then on, all three continued elevated and he showed evidence of a definite consolidation of his left lung. On June 16th, his constant coughing caused his suture line to give away and he disemboweled himself in bed. He was taken to the operating room, the exposed bowel washed off in normal saline and returned to the abdomen. The abdomen was closed under local anesthetic without drainage. On June 17th, he began to show evidences of peritonitis. He was hiccoughing at intervals, and vomited a large amount of greenish fluid. From June 18th to June 24th he received repeated gastric lavages, 1,000 c.c. of normal saline under his skin, and 10 gms. of glucose intravenously each day. He was not allowed anything by mouth until June 24th. The glucose and hypodermoclyses were discontinued. He died on July 1st from the condition in his chest.

The autopsy showed: Left lung, external surface, covered by thickened pleura with grayish and hemorrhagic areas. The root of the lung where it is cut off is entirely necrotic, grayish and very foul smelling. Lymph glands around the lung are black. On section, the entire area of the left lung is dark gray in color and necrotic. The left pleural cavity contains about 300 c.c. of a straw colored cloudy fluid. The abdomen showed no free fluid or pus. The region of the gastroenterostomy showed some recently formed adhesions, no evidence of leakage. The opening was patent. There were dense adhesions around the duodenum and gall-bladder. The liver and pancreas were normal.

Medical Arts Building.

ETIOLOGY AND PATHOLOGY OF DISEASES OF THE GALL-BLADDER.*

By R. A. MORISON, M. D., Abingdon, Va.

In attempting this subject, I am struck with the paucity and uncertainty of information regarding the functions of the normal gall-bladder and biliary excreting organs, and of information regarding the pathological functions. On the other hand, one is struck with the detailed description of diseases, infections, parasites, congenital abnormalities, tumors and the dreadful things that are found in and about the biliary apparatus of dead people.

It is becoming more and more evident that the common term, gall-bladder disease, means disease of the bile-making organs and disturbance of the function of these organs.

It is necessary to review briefly the anatomy of the biliary system. Embryologically, the mesoblastic elements of the liver have the same origin as the diaphragm; while the hepatic duct, the glandular element, originates by an outsprouting from the duodenum. Hence, the bile passages and bile excreting elements are outgrowths and appendages of the alimentary canal.[1]

Briefly, the liver lobule is the unit of the bile excreting mechanism. The lobules are not sharply marked off from one another but anastomose in such a way that, from the arrangement of cells alone, it is not easy to say where one begins and another ends. It is difficult to determine how much of the bile duct belongs to one lobule, as the lobule tends to be a branched mass forming a mantle around the end ramifications of the bile duct. The lobule has the same relation to the portal vein and hepatic artery. A purely artificial lobule has become the time-honored lobule of the liver, chiefly because in a pig that mass is sharply outlined by fibrous tissue which is the capsule of Glisson. The great blood supply of the lobule is brought in by the portal vein; but from capillaries of the hepatic artery which unite with those of the portal where they enter among the liver cells, blood under high pressure gives impetus to the venous stream, driving it forward toward the efferent vein. The portal vein may be ligated and its blood diverted into the vena cava without causing death of the liver tissue. The hepatic artery may be ligated without effect; but if smaller branches of the portal vein are occluded where the hepatic arterioles join them, the blood supply is cut off from the liver cells and they die.

The bile ducts branch minutely so as to connect with the end of each complex cord of liver cells. The bile capillary, bounded on all sides by liver cells, forms the continuance of their lumen. The bile duct epithelium has the same origin as the liver cells, but has not become so

*Read at a meeting of the Southwestern Virginia Medical Society, at Blacksburg, Va., as a part of the Symposium on Diseases of the Gall-Bladder.

differentiated, and remains less highly organized but more hardy cells for the simpler functions of lining the ducts.[2]

The gall-bladder has the capacity normally of about 30 c.c. It is an embryonic diverticulum of the hepatic duct. Its duct joins the hepatic duct to form the ductus choledochus, or common bile duct. It joins the pancreatic duct at the papilla of Vater in 75 per cent of the cases, and enters the duodenum in its second part. In 25 per cent of the cases its entrance is separate from the pancreatic duct.[3]

The wall of the gall-bladder is composed of three coats; a peritoneal covering over the smooth muscle fibers and fibrous tissue, and this is lined by mucous membrane. The mucous membrane is in ridges or folds, and contains the mucous glands of Luschka. Of these glands, Luschka found three to twenty in the entire gall-bladder which are lined with long, cylindrical cells. The muscular coat is thin and the smooth muscle fibers are sparsely scattered, and run mainly longitudinally.[4]

The papilla of Vater is of particular interest in regard to whether or not it contains muscle fibers arranged as a sphincter. Oddi states that the sphincter is definite, and that the tone of the sphincter is equivalent to 50 m.m. of mercury. This sphincter is particularly developed in the sheep, the dog, the pig and the ox. Auster and Chron were unable in man to demonstrate a typical, distinct, anatomic sphincter at the papilla of Vater, although they did show a definite sphincteric action.

There are no ill effects noted in cogenital absence of the gall-bladder in nineteen cases reported by Gay.[5] The gall-bladder is absent in the horse, mule, ass, elephant, pigeon and rat.[6]

The innervation of the gall-bladder is not settled. Meltzer's explanation of the discharge of the contents of the gall-bladder calls for the law of contrary innervation; which means that stimulation of the papilla of Vater causes a relaxation of its sphincteric action, and at the same time a contraction of the smooth muscle fibers in the gall-bladder. Bainbridge and Dale[7] were unable to prove this experimentally, so that the actual nerve supply is a disputed point. Numerous investigators have been unable in the experimental animal to show that the gall-bladder actually contracts and dischages its bile. Auster and Chron[8] were unable to produce definite contraction of the gall-bladder by nervous stimulation. They observed that stasis of the gall-bladder contents last in normally digesting dogs up to three days, and that the gall-bladder empties itself in one week. They conclude that the filling and emptying of the gall-bladder is an irregular and slow process.

The older physiologists state that the gall-bladder is a reservoir that receives and discharges bile at periodic intervals, as required by the demands of digestion. It has been shown,[9] however, that the total liver bile in twenty-four hours is from 500 to 1,100 c.c. and that the bile from the gall-bladder is more concentrated than that from the liver. Hammarsten[10] gives the gall-bladder bile total solids eight times greater than liver bile. Rouse and McMaster[11] have shown that bile in the gall-bladder is concentrated very quickly, which has its bearing upon the formation of gall-stones from cholesterol.

Considering the normal amount of bile from the liver in twenty-four hours and the small size of the gall-bladder, it seems reasonable to deduce that the view held by the older physiologists is incorrect, and that the gall-bladder does not receive the total amount of bile from the liver since it is not large enough to hold it. The most commonly held opinion in regard to the reception and discharge of bile from the gall-bladder is that it discharges a small amount of bile at certain times of digestion, but it does not completely empty itself. The gall-bladder bile is different from the liver bile in its concentration and in the addition of mucus from the glands of Luschka.[12]

The pathological findings in disease of the gall-bladder are not usually confined to that organ alone. It is only in congenital abnormalities of the bladder, such as a total absence, the presence of more than one, septal formation, primary tumors, that we can state the disease is wholly confined to the gall-bladder. Mentzer[13] suggests that lipoid changes in the gall-bladder, "cholesterosis," is but a single and localized instance of metabolic fat disturbance occurring throughout the rest of the body. It is well known that pregnancy and obesity are ofttimes factors which are conducive to gall-bladder diseases. Usually in cholesterosis,[14] or lipoid changes in the gall-bladder, lipoid changes may be demonstrated in the liver; so that when cholesterosis is found in the gall-bladder, the pathologic process

XUM

probably had its origin in cholesteraemia. Papillomatosis[15] of the gall-bladder belongs to the cholesterosis type of disease. In this condition the deposit of cholesterin lipoid is in localized spots—the polypoid area. Essentially, the cholesterosis type of gall-bladder is non-inflammatory.[16] In Mentzer's series, 66 per cent of 612 consecutive necropsies showed grossly visible pathological changes in the gall-bladder; 75 per cent showed microscopical evidence of gall-bladder disease; 20 per cent showed gall-stones.

The primary formation of gall-stones is dependent upon stagnation of bile, a certain diathesis, mechanical causes obstructing the proper discharge of bile, chemical agents and infections. From these things cholesterin crystals may separate out of the bile and cluster about the central point until a solid, stone-like mass is formed. Generally speaking, infections and cell detritus cause the deposit of calcium in the formation of stones from such sources. In other words, when infection is responsible for a stone formation, calcium is deposited along with cholesterin and bile pigments.[17]

When gall-stones are formed, the pathological changes may be various. If the stone occludes the cystic duct completely and the ingress and egress of bile is prevented, the bile that remains is soon absorbed but the sac does not collapse, for it is full of the clear, glairy mucoid secretion from its own walls. When there are other stones in the bladder, its thickened walls shrink down about them until there is no lumen left. The whole gall-bladder becomes a mass of stones tightly bound by fibrous covering. If the stone passes into the common duct, obstructing it, jaundice results, which may remain until it is removed or ruptures and escapes. It may rupture into the peritoneal cavity, into the duodenum, colon, portal vein, biliary passages, urinary tract, peritoneal adhesions, stomach, pleura cavity, or externally through the body wall. If the stone lodge in the papilla of Vater, when this structure receives both the common duct and the pancreatic duct, retrojection of bile into the pancreatic duct may occur, which will cause acute, hemorrhagic, pancreatic necrosis with all its sequelae. Large gall-stones (the largest reported by Richter weighing 112 grams) which escape by rupture into the intestine may become impacted and cause intestinal obstruction. Great dilatation of the stomach may follow partial obstruction of the pylorus.

Persistent presence of gall-stones in one position of the gall-bladder may stir up changes in the character of the mucosa, so that a cancerous growth appears.

In the liver the changes brought about by obstruction to the bile outlets is due to rupture of the bile capillaries, by destroying the liver cells which form those walls. This is not wholly a mechanical effect, for extensive necrosis sometimes occurs.[18] Infection takes place easier in gall-bladders in which stones are present than in the normal one. The infection starts either in the glands of Luschka, or under gall-stones which press on the wall. There may result from such infection acute phlegmonous cholecystitis, sometimes with extensive ulceration of the mucosa. Occasionally, the acute form heals completely; but there is usually a recurrence of many attacks, especially when stones are present and persistent. Then, the wall of the gall-bladder becomes thickened by scar tissue formation, and we have a picture of chronic, recurrent cholecystitis.

The bacteria which infect the gall-bladder may reach this organ by way of the systemic or portal blood stream in septicemia by discharge in the liver bile, and so reach the gall-bladder or ducts. It may travel by way of the lymphatics, or as an ascending infection by way of the common duct.

The commonest infecting agents are, in the order of their frequency, the bacillus coli communis, bacillus typhosus, staphylococcus aureus, streptococcus pyogenes, staphylococcus albus, bacillus aerogines capsulatis. Typhoid bacilli have been found in the center of gall-stones forty years after the attack of typhoid fever.[30]

The commonest sites of tumor that cause obstruction in the biliary tract are, first, the common duct; second and third, the ampulla of Vater and duct of Wirsung; fourth, the duodenal surface of the papilla of Vater; fifth, the duodenal mucosa; sixth, the head of the pancreas.[19]

Carcinoma is the commonest type of primary tumor of the gall-bladder. They show metastases to the liver early and are more frequently associated with stones than not. They are more common in older people. Sarcoma

is rare, only eighteen cases having been reported to date. Small fibromata have been reported, occurring in the common duct or in the wall of the gall-bladder; these are very rare.

The occurrence of stones in a branch of the hepatic duct may cause obstruction to that duct. From this, jaundice does not occur; but the liver lobes drained by such duct degenerate and become fibrous. The unobstructed part of the liver hypertrophies and compensates for the loss sustained, and takes up the additional function of bile secretion required. From obstruction to biliary ducts caused by infection, there may develop obstructive biliary cirrhosis with liver enlargement, smooth or granular, with scars following the bile canals; but this shows no portal obstruction or ascites.

Hanot's cirrhosis, or primary, hypertrophic cirrhosis, occurs without obstruction to the bile ducts, possibly due to obscure infection.

Occasionally, one encounters a gall-bladder which is distended with fluid so that it becomes a very large bag, holding great quantities of fluid. Parasitic disease of the liver or gall ducts may occur from the entrance of parasites by way of the common duct.

Up to this point, we have considered the anatomy, gross pathology and, to a certain extent, the normal physiology, which leaves a part of the field uncovered. This may be expressed as the living pathology, or the pathological physiology, of the organs under consideration. If the bile were as easily obtained as the urine, we would have at the present day an adequate working knowledge of what it contains in the normal, healthy individual, and what it would contain under the various pathological states that we know exist.

Lyon has given great impetus to the search for the pathological constituents of the bile. His work was based upon the discovery of Meltzer[20-21] that magnesium sulphate applied to the papilla of Vater causes a discharge of bile. Lyon's application of this discovery is that when the duodenal tube is properly placed in the duodenum and magnesium sulphate, 25 per cent solution, injected, there follows a secretion of bile. The first, which he calls "A" bile, coming from the common duct; then, the discharge of "B" bile, which comes from the gall-bladder; following this, the "C" bile, which is that excreted by the liver. The microscopical study of these partitions, he claims, will determine the site of disease, and, to a certain extent, the type of disease. Things found in pathological states are the presence of epithelial cells, pus cells, mucus, clumps of bacteria and crystals.[22]

Some workers have gone so far as to claim to have recovered bacteria causing gall-bladder disease by means of the duodenal tube and cultures. However, considering the unsterile surfaces over which the duodenal tube must travel before it reaches the duodenum, it seems to stretch our credulity too far. Boardman,[23] in an extensive study, concluded that he could not rely upon cultures so made. It is by no means accepted that Lyon's A, B, C bile fractions come from the points he designates. It seems reasonable, but the difficulty has been to substantiate it experimentally. Most workers conclude that there is not sufficient contractility of the gall-bladder to completely discharge its bile.[24] It has been noted at operation upon the human that flushing the duodenum with magnesium sulphate did not cause discharge of the gall-bladder contents. Again, with diseased gall-bladder, the thickened, fibrous walls have no power of contraction.[25]

Whatever the outcome of these studies concerning bile fractions recovered by the duodenal route, there are discoveries of pathological blood composition in diseases of the biliary tract which give us a definite knowledge of the conditions existing there.

Jaundice is the most obvious expression of the body to biliary blockage. This, until recently, was thought to be due to liver disturbance only. Whipple and Hooper[26] have shown that when hemoglobin is injected into the circulating blood of dogs, it is rapidly converted into bile pigments when the liver has been eliminated from the circulation. The principal constituents of bile are the salts of bile acids, bile pigments, neutral fats, lecithin, phosphatides, cholesterol, the salts, of iron, copper, calcium and magnesia. The bile pigments are bilirubin, biliverdin, bilifuchsin, biliprasin, bilicyanin, choleprasin and cholelin.[27] Of these, we are concerned mostly with the behavior of cholesterol, calcium and bilirubin.

Hypercholesterolemia is observed in cases with gall-bladder disease and the deposit of stones in the gall-bladder tract. Rouse and McMasters[28] have shown experimentally in dogs that gall-stones frequently form in the absence of gall-bladder stasis, in the absence

XUM

of gall-bladder influence and in the absence of infection. Such stones are composed of cholesterin and calcium bilirubinate.[29] the deposit occurring about nuclei of organic debris. This is an important discovery in the formation of gall-stones because it gives an example of their formation from the drainage products of a slightly damaged liver or its biliary ducts, or of cellular debris.

Bilirubin is a normal constituent of the blood serum. This may be detected in dilutions as great as 1 to 1,500,000. Its amount in the blood serum is normally an expression of the physiological wastage of red blood corpuscles. In jaundice, its concentration is much greater in the blood pool than in the tissues.[29] The tissues take up the pigment very slowly and with difficulty. The kidneys secrete this pigment but are unable to excrete the total amount produced by the body in jaundice. There is always local intensification of jaundice where tissues are inflamed. So it is evident that where there is blockage of the bile outlet the jaundice becomes progressively worse, and is only relieved by removal of the obstruction.

The bilirubin that is normally discharged in the bile is split by the action of bacteria into urobilin, and partially absorbed by the intestinal mucosa, and returned to the liver and re-excreted into the bile. This gives a reason for the formation of white bile, which occurs in instances of gall-bladder blockage.

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DIAGNOSIS OF CHOLECYSTIC DISEASE.*

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With the progress being made in the diagnosis and treatment of gastro-intestinal diseases, the primary value of accurate clinical histories and physical examinations is being more fully appreciated. Perhaps in no condition is the need for this greater than in disease of the gall-bladder. Frequently its symptoms are altogether minor and escape detection unless the patient has been carefully interrogated. Frequently its symptoms are typical, or the picture of the disease may be incomplete, creating a situation in which confirmatory studies need to be made. At times the symptoms suggestive of cholecystitis are due to other pathology, such as duodenal ulcer, or chronic appendicitis, or even cardio-spasm, so that differential considerations need always to enter into the pre-operative study of the case. Most of these are conditions which can be satisfactorily demonstrated once the correct lead has been gotten from the history or physical findings, and the laboratory invoked objectively to confirm or disprove them.

At present, the diagnostic criteria of cholecystic disease are passing through a change. Critical analyses have been made showing how much symptoms alone are worth. They may be misleading when present, but more frequently advanced pathology may exist with very few symptoms. New laboratory procedures have been developed whose accuracy and relative value seem to be very great, although they are yet in the process of being further perfected. The meaning of certain gross anatomical findings, notably the "strawberry" gall-bladder, is now better understood. Formerly, skepticism was frequently expressed as to this being a pathological entity, whereas

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now, as a result of blood chemistry studies and the study of post-operative follow-up records, it is known to be definitely pathological, though non-inflammatory, and due to changes in the fat metabolism of the body resulting in the deposition of cholesterol in the mucosal villi of the gall-bladder.[1]

It is important to bear in mind that cholecystitis is a progressive disease, the inaugural stages of which have hitherto usually escaped detection. With the exception of the solitary stone of pure cholesterol, which is non-inflammatory in origin, gall-stone formation represents a terminal stage of disease.[1] It is always preceded, except as noted, by some degree of cholecystitis, which means infection. Yet, if we look over our surgical records of the past, we find that most of our cases have been cases with stones. C. H. Mayo recently reported the incidence of stones at operation as 70 per cent.[2] This and Moynihan's comments emphasize the need for more attention to early symptoms and diagnosis, and Moynihan has recently described again his conception of this early or pre-gall-stone symptomatology.[1] He describes these symptoms as "amply sufficient to indicate the presence of cholecystitis," and has expressed them so well that I can do no better than to quote him verbatim.

"They are symptoms referred by the patient to the stomach. The complaints are of a fulness, weight, distention or oppression in the epigastrium coming, as a rule, within half or three-quarters of an hour after meals, relieved by belching, and dismissed almost on the instant by vomiting. These sensations are elicited with remarkable constancy by certain articles of diet, especially those containing greasy or acid material. There is a sensation of tightness, which, if unrelieved, may become acutely painful; by it, the patient is made restless, and from it he obtains relief by bending the body forwards, by flexing the right thigh on the abdomen, or by loosening all garments which press upon the waist. There is often a complaint of acidity or heartburn and in the act of belching there may be bitter and acid regurgitation. Many patients notice that quite suddenly there is a great gush of saliva into the mouth. While discomforts last there may be a 'catch in the breath.' When a deep forced breath is taken an acute stabbing pain may be felt on the right side, of such severity that the act of respiration is suddenly checked. Faintness, nausea, sweating of the face and neck, and a sense of great prostration are followed by vomiting. There may be a slight sensation of chilliness and of shivering, especially in the evenings; 'goose-flesh' is mentioned repeatedly in the clinical histories as a very disagreeable experience. Upon all these symptoms which exist perhaps for years a series of attacks of colic may be imposed."

Although stones may be latent, their presence until recently has been recognized mainly by the occurrence of colic, or of jaundice, or of the intermittent syndrome of Charcot. Yet colic is by no means diagnostic of stone. Blaylock,[3] reporting the Hopkins' series in 1924, showed an incidence of colic in 57 per cent of their cases without stone, and jaundice occurring with 40 per cent frequency, which was the same incidence of jaundice as in their cases of stone that had not migrated to the common duct, while intermittent chills, fever, sweats and jaundice are evidences of stone in the choledochus, and only presumptive evidence that it may have formed in the gall-bladder.

With regard to malignancy of the gall-bladder, it is not uncommon. Magoun and Renshaw,[4] reporting a series of operations from one of the large clinics, found carcinoma in only 84 out of 7,878 operations on the gall-bladder, slightly more than 1 per cent. W. J. Mayo found carcinoma in 4.6 per cent of 3,908 operative cases. It is usually associated with stone and may be suspected in a case of painless jaundice giving a previous history of colic.[1]

Acute cholecystitis manifests itself in one of two ways, depending on the patency of the cystic duct.[5] In the obstructive type severe pain in the epigastrium, nausea, fever, tenderness, rigidity and leucocytosis are to be found, although it is well known that the general symptoms of infection are often conspicuously mild. With the non-obstructive type the onset is gradual, and there is only anorexia, nausea and a little fever. Slight aching pain in the epigastrium or at the right costal margin may be noted, but colic is usually absent. It is in such cases as these that the recent laboratory diagnostic procedure of van den Bergh, presently to be described, is of great value.

The foregoing symptoms have been recognized for years, but it seems clear that they are by no means constant, as was recently shown in a pathological and clinical report by Mentzer.[6] Mentzer divided his cases clinically into (1) those that gave a history of colic, and (2) those giving a positive gastric history consisting of flatulence, belching and qualitative food dyspepsia. Pathologically, the cases were divided (1) into those showing stones, (2) those with cholesterosis or the strawberry gall-bladder, (3) papillomatosis, and (4) gross lesions. Fifty per cent of the cases of stone gave no history of biliary colic, while 87 per cent of the cholesterosis cases, 20 per cent of the papillomatosis cases and 36 per cent of gross lesions gave negative gastric histories. Yet, at necropsy every one of these

XUM

cases presented evidence which the pathologist recognizes as evidence of disease, and which the surgeon, knowing that pathology and its secondary effects on the liver, pancreas, and duodenum, would deem sufficient to justify his intervention. It becomes pertinent, then, to ask how these latent cases can be demonstrated clinically. Undoubtedly the most important contribution to this subject is the work of Graham Cole and Copher, first reported in 1924, and known today as the Graham test, or as cholecystography. It is a development of the Rowntree-Rosenthal test of liver function by the use of phenol-tetrachlorphenolphthalein. This substance was found by Graham and his associates to cause the bile to throw a faint shadow. Subsequently, they substituted an atom of sodium for the phenol, and bromine or iodine for the halogen, thus producing a substance that is more nearly radio-opaque than the original, and called the new product sodium-tetraiodo or tetrabromphenolphthalein. Administration of early preparations of the salt, particularly the iodo salt, frequently caused unpleasant reactions, such as nausea, vomiting, diarrhoea and headache, but as greater purity of the salt was obtained, these reactions became less frequent. At the outset the salt was given only intravenously, but subsequent experience has shown that oral administration is usually adequate, so that at present the intravenous route is used chiefly when the finding may be regarded as questionable after oral administration. Furthermore, as greater purity has been achieved, the iodine salt, having a higher atomic weight and therefore casting a denser shadow, is widely replacing the bromine salt. The dosage of the iodine salt for oral administration is estimated at 60 milligrams per kilo bodyweight, and for intravenous administration a fixed dose of 3.5 grams is used. For the bromine salt sufficient concentration in the bile is obtained by 100 milligrams per kilo given orally, while intravenously 4 grams is sufficient.

In my own work, using the oral route, the best shadows have been obtained with the following procedure: The evening before the chemical is to be ingested, a mild laxative dose of milk of magnesia is given. The following day the diet is restricted to liquids. With the supper, one-fourth of the dose in capsules is taken at the beginning of the meal, one-fourth at the middle, one-fourth at the end and the last fourth is taken about half an hour after supper. The patient immediately retires and is instructed to lie on the right side and take water freely. About three hours after supper 30 to 40 grains of sodium bicarbonate is given. The next day, fourteen hours after ingestion, the patient reports without breakfast for the first roentgenogram of the series.

Dr. N. S. Peters, our roentgenologist, tells me he uses a Buckey diaphragm, using a 17x 22 duplitized film with double intensifying screens. The gap is five inches, milliamperes 25, distance 27 inches, time 6 to 8 seconds, using a medium focus radiator tube. If no shadow at all is obtained, the patient is dismissed after making careful search on the film for the capsules to make sure they do not remain unabsorbed. If a shadow is present, further information relating to the physiological efficiency of the gall-bladder to empty itself, whether this be by way of the cystic duct or by absorption of bile through the lymphatics into the liver, may be obtained. For this purpose the patient is instructed to take a breakfast containing toast, butter, tea and 250 c.c. of cream, and to report four hours after the first for the second film. Normally, the gall-bladder at this time will cast a shadow somewhat smaller and usually less dense than that seen at the fourteen hour film. The interpretation of the findings is based on mechanical and absorptive functions of the gall-bladder. The normal gall-bladder admits bile freely by way of the cystic duct. It is also known through the work of Rous and McMaster that bile is concentrated in the gall-bladder. The normal gall-bladder admitting radio-opaque bile therefore casts a dense homogeneous shadow. The eighteen and twenty-four films normally show a shadow of progressively decreasing density. The pathological gall-bladder most commonly fails to throw any shadow.[7] This is due to some impediment in the cystic duct to the entrance of bile. This may be an impacted stone, edema, inspissated bile, spasm, or stricture. When stones are present, the shadow may be mottled, or crescentic filling defects may be noted. Failure of the shadow progressively to diminish in size and intensity is regarded by Graham as evidence of cholecystic disease, since this is a criterion of its ability to empty itself or to concentrate bile. As to the value of this test, numerous reports are available in the literature. Milliken and Whitaker[8] state that cholecystography has afforded correct diag-

noses in 95 per cent of proved cases, as compared with 65 per cent where the clinical impression alone was used. Moore,[9] in the *American Journal of Roentgenology*, reports correct results in 92.5 per cent of 156 cases, and states that it is more reliable than inspection and palpation at operation. Graham[10] and his associates report correct results in 92.25 per cent of 80 cases; Zink[12] reports 96 per cent correct in 131 cases. Nothing but favorable reports have been found, yet it seems only rational that we should have full regard for the more time-honored clinical criteria, and interpret with conservatism the results of this relatively recent diagnostic innovation.

Another useful procedure in identifying certain cases of cholecystitis is the van den Bergh diazo reaction, or icterus index. In as much as this deals with the subject of bilirubinemia, and for that reason covers a wide range of pathology, only sufficient explanation of it will be here attempted as to indicate its clinical application in cholecystitis. It is now generally an accepted fact that some degree of hepatitis accompanies a large percentage of cases of cholecystitis. The liver is an organ having a large factor of safety, and one of its chief functions is the excretion of bile. One of the constituents of bile is bilirubin, which is derived through the blood stream from destruction of erythrocytes, and is normally excreted by the polygonal cells of the liver into the bile capillaries. Therefore, failure of these polygonal cells to excrete a normal amount results in increased values for bilirubin in the blood. The same increase likewise results from any obstruction of the bile passages, whether that be in the capillaries or in the extrahepatic ducts. Van den Bergh's method affords the most accurate means now available for the quantitative estimation of the bilirubin content of the blood. Briefly, his method may be stated as follows: On the addition of Ehrlich's diazo reagent to the serum, in the presence of obstructive jaundice a purple color appears immediately. This is called the "direct reaction," and McNee has suggested that it is diagnostic of obstructive jaundice. If the color appears slowly, it is known as the "delayed" or "biphasic" reaction. This is seen particularly in cases of toxic jaundice. On the addition of alcohol, a rose color is produced, due to the formation of azobilirubin. The amount of azobilirubin can be estimated calorimetrically and from this the amount of bilirubin in the blood serum calculated. Normal values are from .5 to 2.0 milligrams per 100 c.c. of blood.

In obstructive jaundice, the kidney will not allow bilirubin to pass into the urine until 3 to 5 milligrams per 100 c.c. is present in the serum, and a three to five fold increase is necessary for the production of clinically demonstrable jaundice. Lying between the point of normal bilirubin and clinical icterus is the condition known as a latent jaundice, a condition which may be encountered in cholecystitis. Judd has made the statement that latent jaundice has more clinical significance than we realize. While the quantitative estimation of bilirubin in the serum is mainly a test of liver function, if we can demonstrate the absence of a toxic or haemolytic factor in the production of excessive values, it would seem that in this we have a means of obtaining valuable evidence of the presence or absence of disease in the biliary excretory apparatus.

The usefulness of gastric analysis can be summarized in a few words. It is frequently of no value. The finding of an anacidity, or of low acidity, is suggestive but not diagnostic. About 40 per cent of cases of cholecystitis give low values, 50 per cent give normal values, and 10 per cent increased values.[13]

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Reynolds Arcade Building.

MISTAKEN DIAGNOSES OF INTESTINAL PARASITES.*

By R. H. HARRINGTON, M. D., Grant, Va.

One of the most common ailments brought to the general practitioner, especially in country districts, is intestinal parasites, chiefly ascaris lumbricoides, commonly called by the laity, "worms." In a series of fifty-one cases seen, only two will be mentioned, and then only from the standpoint of erroneous diagnosis.

*Read before the Southwestern Virginia Medical Society, at Blacksburg, Va., September 9-10, 1926.

XUM

Case 1.—E. T., age 11, white male, came to office with diagnosis of pulmonary tuberculosis. History of persistent cough for three weeks, with sudden onset, no sputum, anorexia, loss of fifteen pounds weight in past four months, no night sweats, no chills or fever. Family history negative, normal temperature, accelerated pulse, very pale. Lungs showed no pathology on examination. Heart normal, slight general abdominal tenderness; otherwise negative. A history of worms two years previously. Upon administration of oil of chenopodium, patient passed sixty worms. Ten days later cough had entirely disappeared, appetite increased, and stool examination was negative for intestinal parasite ova. Two years later patient reported well, no return of any symptoms, and above the average for his age.

Case 2.—H. H., white male, age 17, came to office with diagnosis of pulmonary tuberculosis. History of cough, paroxysmal in character, of two weeks' duration, nausea with vomiting, slight elevation of afternoon temperature, no history of worms. Anorexia, loss of ten pounds weight in two weeks, occasionally grinding of teeth at night, skin pale, bluish cast around mouth and cheeks highly colored. Patient coughing every two to ten minutes. Head examination negative. Lungs free from pathology, with exception of some slight moist rales heard over the bronchus. Heart showed a functional murmur at apex (mitral). Abdomen tender and sore in epigastrium, reflexes exaggerated; no other pathology found. Upon administration of calomel and santonin patient passed sixteen worms. Ten days later cough was entirely relieved, appetite good, weight increased two pounds, color normal, stool examination negative for parasitic ova. One year later patient in good health with no return of any symptoms.

Both cases were treated on clinical diagnosis rather than wait for stool examination on account of severity of symptoms. The diagnosis in Case No. 1 did not seem warranted in view of negative chest findings, and diagnosis of intestinal parasites was made chiefly on loss of weight over a period of four months without any chest involvement, coupled with history of previous parasitic infection. Case No. 2 was more nearly clear-cut, and the clinical diagnosis of intestinal parasites much less complicated.

These two cases point out several things:

First: On account of severity of symptoms, treatment must often be instituted on clinical findings before laboratory reports can be made available as corroboratory evidence of the correctness of the clinical diagnosis.

Second: A stool examination is always indicated after treatment, and should be done before treatment where possible to do so, especially if there is any question as to diagnosis. As proof of this, I would like to quote a few figures from Metcalf, of the Children's Memorial Clinic, of Richmond, Va. He found that approximately 8.3 per cent of all stools examined showed ascaris lumbricoides; also that the greatest number positive were found in early spring and late fall.

Third: Coughs in children, who have negative chest or nearly so, should not be diagnosed as pre-tubercular and tubercular without first ruling out ascaris lumbricoides and other intestinal parasites, because cough thought to be of pulmonary origin may possibly be reflex conditions caused by irritation of the gastro-intestinal mucous membranes by intestinal parasites.

THE KIELLAND FORCEPS.*

By M. PIERCE RUCKER, M. D., Richmond, Va.

I am bringing the question of the Kielland forceps up for discussion in this Society, not because it is new, although the invited guest of the State Society last year in speaking on "The Forceps Operation" made no mention of this instrument, but because there are at least three instruments owned by our members and I am interested to know the results that have been obtained with them. Since Kielland's first communication in 1916, there has been a great deal in the German literature *pro* and *con*. At first, the opinion was divided as to whether the new forceps were superior to the Naegele forceps. Next, the opinion seemed to be that it was a superior instrument but that its use should be restricted to specialists. It is now pretty generally agreed that it is the best instrument for universal use. At the meeting of the Gynecological Society in Breslau last year, the Kielland forceps were again under discussion, and Baumm advocated the teaching of its use to medical students.

The literature in English is very meagre, possibly because it has been difficult to procure the forceps.† It was not until the latter part of 1923 that I was able to purchase a pair, al-

*Read before the Manchester Medical Society, November 2, 1926.

†The instrument is patented in Germany, but not in this country. In the United States the name "Kielland," as written by himself, is protected by Trade-Mark No. 205,784 of November 17, 1925.

though I made inquiry of all the instrument exhibitors at every medical convention that I attended. Greenhill has an excellent review of the literature, and Jarcho, in the July, 1925, issue of the *American Journal of Obstetrics and Gynecology*, reports his experiences with the new instrument. Except two discussions before the Philadelphia Society in 1925 and 1926, there is no other mention of the forceps in American journals.

Th new forceps differ from the classical models; first, in the almost complete absence of pelvic curve; and, second, in having no lock in the generally accepted sense. These modifications allow a cephalic application of the forceps even when the head is lying transversely, and, what is more important, the forceps stay put. I have never been able to make a Tarnier, a Simpson, an Elliott or a Hodge forceps stay on a transverse head. Invariably they adjust themselves to the pelvis rather than to the fetal head and, after a few tractions, I would have an oblique application of the forceps, no matter how correctly I had applied them.

The most radical difference, however, is in the method of application. It was only after several readings of Kielland's directions that I screwed up nerve enough to try it, and even then I had visions of punctured lower uterine segments and loops of cord caught by the revolving blade. Kielland emphasizes the importance of an accurate diagnosis of the position. The forceps are held before the patient in the position they should be in when applied, with the front of the forceps (indicated by a little knob on each blade) directed towards the back of the baby's head. Two fingers are now introduced into the vagina and are hooked under the anterior lip of the cervix. The anterior blade, with the concavity of the cephalic curve upwards, is introduced between the fingers and the cervix very much as you would introduce an urethral sound. When introduced properly, the beak can be felt through the anterior abdominal wall several inches above the symphysis. The blade is now gently turned on its long axis (the round part of the shank resting on the fetal head) towards the side on which the small knob is located through an arc of 180°. The concavity of the blade adjusts itself to the side of the fetal head. The handle should lie in the mid-line. The posterior blade is now introduced under the guidance of two fingers between the head and the posterior lip of the cervix. The shank should fall into apposition with that of the anterior blade without difficulty or without any rotation. The sagittal suture should run perpendicularly to the plane of the forceps. Traction is made in the direction of the handles. It should be emphasized that no force should be used in the introduction of the forceps or in the rotation of the anterior blade. Much less force is needed for extraction than is the case with ordinary forceps. Sometime ago I attempted to deliver a head in deep transverse arrest in a funnel pelvis with a pair of Tarnier forceps, but was unable to do so without using more force than was warranted. I applied the Kielland forceps and the extraction was surprisingly easy. With both forceps I was making traction in the proper direction, but the Kielland forceps grasped the baby's cheeks and did not interfere with flexion of the head, whereas the Tarnier forceps had a firm grasp of the sides of the head at first, and later shifted to an oblique application. At no time was the head freely movable in its grasp.

Some of you may remember my reading a paper before this Society five years ago, in which I tried to demonstrate the philosophy of forceps extraction by pulling a cork out of the neck of a bottle with two wires slightly bent at their tips. If you got the two wires on opposite sides of the cork with the bent tips beyond the cork, there was no need of fastening the wires together. The neck of the bottle kept the wires in place and all you had to do was to make traction. The Kielland forceps act on this principle. The pelvis keeps the two blades in place, and their light grasp on the baby's cheeks permits the head to adjust itself to the pelvic canal.

In the past three years I have learned to depend more and more upon the Kielland forceps, until now I rarely use any other kind. It is the only forceps that can compete with Potter's version. For the delivery of the head in deep transverse arrest in a funnel pelvis it is the ideal instrument, especially with the patient under sacral anesthesia. It is the preferable instrument for all mid-forceps cases, and is just as satisfactory as any other model for low forceps work. The technic for low forceps application is the same as with any other forceps. For the delivery of the after-coming head, its straightness is an advantage, as the baby's body is less in the way. The

XUM

only place any other forceps are preferable, is in the low Cesarean section. Here a forceps with a lock and crossed blades are needed to lift the head out because there are no bony walls to hold the blades in place.

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Medical Arts Building.

ESSENTIAL THROMBOCYTOPENIA (PURPURA HEMORRHAGICA).

Report of a Case with Splenectomy.*

By A. B. HODGES, M. D., Norfolk, Va.

The purpose of this communication is to add another case to the small number of reported cases of essential thrombocytopenia in which the spleen has been removed. As the disease is a relatively rare one, only in this way can the value of the operative procedure be estimated. Then, too, accumulated data may give us some information concerning the many obscure factors in the disease process itself.

In the year 1731 Werlhof differentiated purpura hemorrhagica from a large group of diseases in which purpura occurred, and the disease was known as morbus maculosus werlhofii for many years.

In the year 1887 Denys observed in a case of purpura that the blood platelets, which had been described by Hayem and Bizzozero, were entirely missing. Two years later, Hayem substantiated this observation and was the first to note a reduction of the actual platelet counts. In 1915 E. Frank arrived at the conclusion that the blood platelets are always reduced in purpura hemorrhagica and proposed the name "essential thrombopenia." In 1920 Eppinger suggested that essential thrombocytopenia was a better term as directly pointing to reduction of the platelets rather than the substance thrombin. Hayem noted the fact that there is an absence of clot retraction in the disease, and Duke in 1912 emphasized the prolonged bleeding time in the presence of a normal coagulation time.

Due to the large amount of work that has been done on the subject, essential thrombocytopenia is now generally considered a definite disease entity, and is characterized by the following main features:

1. Diminution of the blood platelets. The average number of platelets in normal blood is between 200,000 and 300,000. The platelets vary from none to 100,000 in this disease, and the average is about 30,000, but at times the number may approach the normal figure.

2. Preservation of the normal coagulation time of the blood.

3. Prolongation of bleeding time. The normal time is from one to three minutes, but in this disease it is usually prolonged from ten minutes to an hour or more.

4. Some change in the capillary activity resulting in a hemorrhagic tendency. This disturbance in the capillary function can be demonstrated by what is known as the capillary resistance test. A tourniquet placed on the arm sufficiently tight to prevent the venous return without obliterating the pulse is followed in a few minutes by the appearance of petechiae.

5. Failure of clot retraction. Normally the clot retracts, pressing out the serum in an hour, but in this disease it may be delayed twenty-four hours, and very often there is none at all.

Cases of essential thrombocytopenia may be divided into acute and chronic. Of the chronic types there are two sub-groups: continuous and intermittent. It is most common in children and young adults, and a greater proportion of females are affected than males. In looking up the cases in the literature that have been operated upon, nine were male and twenty-three were females; and the age of the onset of the disease varied from two and one-half years to forty-five years, with an average of thirteen years.

The disease is characterized clinically by hemorrhages into the skin and from the mucous membranes. The skin lesion may be only a diffuse crop of petechiae localized to certain body surfaces or scattered widely over the body. The lesion may be small or large and sometimes definite hematomata develop.

*Read before the Norfolk County Medical Society, 1925.

The patients bruise easily. Of bleeding from mucous membranes, epistaxis is probably most common. Uterine bleeding is very common in females. Bleeding from gums and gastro-intestinal tract is observed. Hemoptysis is rare. Occasionally a cerebral hemorrhage will occur, giving rise to hemiplegia, convulsions, or other symptoms referable to the central nervous system. Following the bleeding, an anaemia of the secondary type develops, and the patient becomes pale and suffers from the unpleasant symptoms of anaemia. The spleen may or may not be palpable. Fever is sometimes present, particularly in the severe cases. The leucocytes are usually normal in number, although occasionally they are moderately increased with a slight polymorphonuclear leucocytosis.

If these points are kept in mind, the diagnosis of this disease offers little difficulty except in its acute form. The acute form must be differentiated from acute aplastic anaemia, the acute leukaemias, and the acute infectious diseases. This is often very difficult.

The etiology of the disease is unknown. Theories as to its pathogenesis have been many and interesting. Letzerich, in 1884, isolated a bacillus which he believed to be the cause of purpura hemorrhagica, and with this organism he was able to produce in animals hemorrhages and other evidences of the disease. He considered the condition due to a chronic infection.

In the disease the platelets, on one hand, and the capillaries on the other, seem to be principally involved. It has been definitely shown by Wright that the platelets originate from the megacaryocytes. Normally in extra-uterine life the megacaryocytes occur only in the bone marrow. Conditions which activate the bone marrow increase the platelet count and, *vice versa*, inhibition of the marrow decreases the platelet count. Howell states that the platelets furnish a substance which hastens coagulation, and he calls this substance thromboplastic substance or thromboplastin. Considering the platelets alone, it follows then that there are a number of theoretical possibilities:

1. That platelets are not formed in a normal quantity. This would imply that there is either an aplastic condition, or an inhibition of the megacaryocytic function. When the bone marrow is examined in these cases we do not find a diminished number of megacaryocytes, but, on the contrary, we find an increased number of these cells, and sometimes these cells are found in the spleen and other places where hematogenesis takes place in foetal life. Frank believes that the platelet-producing function of the megacaryocytes is inhibited by some substance liberated by the spleen; hence, the decrease in the number of platelets in the circulating blood. If we consider this for a moment, it seems almost impossible for a substance to inhibit the activity of one type of cell in the bone marrow and not affect the other cells. Then, too, it is difficult on this hypothesis to explain the very rapid increase in the number of platelets in the circulating blood following splenectomy. Usually in essential thrombocytopenia many abnormally large platelets are found and these large types indicate stimulation of the megacaryocytes.

Then, again, the coagulation time in essential thrombocytopenia is normal. Now, the only formed element which takes an active part in coagulation is the platelet, which produces a thromboplastic substance. If the platelets were formed in normal numbers, there would be a deficiency of thromboplastic substance and prolonged coagulation, a condition which does not exist.

2. That platelets are formed in normal numbers but that they are destroyed somewhere in the body, either by an abnormal activity of an organ or by an antiplatelet serum.

Kaznelson and many other investigators believe that the platelets are destroyed by the reticulo-endothelial system, the greatest number by the spleen or through some activity of the spleen. He bases his reasoning on the frequent occurrence of splenomegaly in the disease; the observation that the platelets are increased in normal animals following splenectomy; that splenectomy benefits a large percentage of the patients suffering from the disease; and that in a case of his which was operated upon, platelets were found in the spleen in large numbers.

In support of this theory, it has been shown that in essential thrombocytopenia the blood in the splenic veins contains fewer platelets than the blood in the splenic arteries. However, this means very little, for normally venous blood in general contains fewer platelets than arterial blood.

This hypothesis sounds very plausible; but how can it account for those cases which, after splenectomy, are cured so far as a tendency

XUM

to hemorrhage is concerned, but which continue to have a low platelet count? Many authors state that in essential thrombocytopenia hemorrhagic manifestations come into evidence when the platelets fall below 60,000; but there are cases on record that, after operation, have had no bleeding, no purpura, and a normal bleeding time in spite of a platelet count well below 60,000.

Recognizing that there was a constant association of diminished platelets and essential thrombocytopenia, attempts have been made to produce the disease experimentally. Cole, in 1907, produced an antiplatelet serum by repeated injections of foreign blood platelets. LeSourd and Pagniez injected animals intravenously with antiplatelet serum and were able to produce a condition in the blood closely resembling that found in essential thrombocytopenia. There was a rapid disappearance of platelets; the blood clotted in normal time; and the clot failed to retract. They had previously shown that retraction of the clot depended on an abundance of platelets. Lee and Robertson injected guinea pigs with antiplatelet serum subcutaneously, intraperitoneally, and directly into the heart. Three animals were given subcutaneous injections of 1 c.c. each. All developed purpuric spots. The bleeding time increased from two minutes to fifty minutes, and the platelet count dropped from 300,000 to 10,000 in twenty-four hours.

These experiments show that an antiplatelet serum can be produced in animals, and that this serum can produce a type of purpura in animals that resembles essential thrombocytopenia in man. Beyond this, it seems to me, we cannot go, for it is impossible to demonstrate the presence of any antiplatelet serum in the blood of patients suffering from the disease.

Giffin and Holloway, from the Mayo Clinic, suggest that essential thrombocytopenia is only a severe form of simple purpura; that it is usually secondary to localized infection; and that in some way chemical toxins are formed as a result of bacterial action which affect vascular tissue and the vascular elements, destroying the platelets and producing destructive changes in the capillary walls, allowing blood to pass out into the tissues. They believe also that this toxic substance is formed by the reticulo-endothelial system of which the spleen is the major organ; and that the toxic agent which acts on the vessels and blood itself is not the original organism or its product, which initiated the pathologic process, but rather a resulting secondary product, perhaps an abortive substance designed originally to protect.

This hypothesis is entirely too fanciful. There is no reason for thinking that essential thrombocytopenia is in any way associated with foci of infection; or that there is a circulating toxin which causes a destruction of blood platelets, and a degeneration of the capillary walls. Most investigators today feel that purpura simplex is quite distinct from essential thrombocytopenia and that the only factor the two conditions have in common is the tendency to purpura.

Now, when we come to consider the capillaries in this disease, we find several hypotheses. Definite changes in the capillary walls have been described, but the majority of investigators have failed to demonstrate these changes. We know that capillary hemorrhage is normally controlled by the inherent contractility of the vessels and by the formation of a platelet thrombus. Frank believes that one of the normal functions of the circulating platelets is to prevent the diapedesis of the red cells between the endothelial cells of the capillaries. Janeway thought that the blood platelets participate in the control of vascular contractility and that this contractility reinforces the protective mechanism against the capillary hemorrhage. We do know that the platelets are reduced in essential thrombocytopenia and we can see why, when once a vessel is ruptured, the bleeding tends to continue due to the delay in clot formation; but are we so sure of the role of the platelets in preventing diapedesis of the red blood cells, and do we know that the platelets are associated with vascular contractility?

In 1923 Brill and Rosenthal reported two cases of essential thrombocytopenia with splenectomy. Both cases recovered from the disease, in spite of the fact that in one there was only a slight increase in the number of platelets, 50,000, and in the other the platelets, although they rose to 295,000, only remained increased for six days, and in eleven days fell to 60,000, and after that fell further and never rose above 30,000.

These two cases led them to seek a further explanation for the disease, as neither the theory of megacaryocyte inhibition nor that of a destructive action of the spleen could explain the findings in these two patients.

They formulated the hypothesis that the spleen exerts an influence on two important properties of the blood platelets; namely, the one which produces clot retraction, and the property of the platelets to agglutinate to form thrombi.

This, however, is a mere statement; and no explanation is offered as to how this is brought about, or, when once brought about, how it can explain the many factors present in the disease, such as the decrease in the number of platelets and the change in the capillary walls which allows the escape of blood into the tissues.

Report of Case

History.—A white school girl, aged 15, was first seen November 13, 1924. In October, 1923, she first noticed many small red spots scattered diffusely over her body. These continued to appear, at times more numerous than at other times, but she was never without them. In March, 1924, she menstruated for the first time. The bleeding continued for one month, a large quantity of blood was lost and the patient became very weak. She received one transfusion of 500 c.c. of whole blood and the bleeding from the uterus ceased. Five weeks later she menstruated again, the period was prolonged, and she lost quite a quantity of blood. After this her periods occurred every three weeks with the loss of much blood. In the first part of November, 1924, after a prolonged menstrual period, she was transfused for the second time.

The family history and the past history were negative. There were no bleeders in the family. The patient had been quite well with the exception of the usual childhood diseases. Her appendix and tonsils had been removed several years before. The convalescence was uneventful, and there were no hemorrhages during or following the operations.

Physical Examination.—The patient was an undernourished, poorly developed nervous child of 15. The skin and mucous membranes were a little pale. Over the chest and extending into the axillae were many small petechiae, some old and some fresh. Scattered over the back, the shoulders, arms, and abdomen were a few such hemorrhages. Over the extensor surfaces of both feet were large ecchymoses, about 3 cm. in diameter. There was also a large ecchymosis over the external malleolus of the right foot. A few small petechial hemorrhages were seen over the hard and soft palates, and about the gums. There was no bleeding from the gums and no hemorrhages in the eye-grounds. The tonsils had been removed. The heart was 90 per minute and no murmurs were heard. The spleen and liver were not palpable. There was no bleeding from the vagina.

Blood.—R. B. C. 3,970,000. Hmb. 55 per cent. W. B. C. 6,950. The differential formula was normal. The R. B. C. showed changes characteristic of a mild secondary anaemia. One normoblast was seen. The platelets numbered 40,000. The coagulation time was 9 minutes; the bleeding time 12 minutes; and the clot was non-retractile in 24 hours. The tourniquet test was positive. The urine showed no R. B. C., and there was no blood in stools.

Course.—After spending a short time in the hospital, the patient was allowed to return home.

December 10, 1924.—General condition unchanged. Many petechiae and a few ecchymoses. Hmb. 60 per cent. R. B. C. 3,900,000. Platelets 20,000.

January 5, 1925.—Patient had gained 3 lbs. Color better. Petechiae persisted. Her menstrual period lasted four days, with moderate bleeding. Hmb. 68 per cent. R. B. C. 4,000,000. Platelets 32,000.

February 5, 1925.—Condition unchanged. Platelets 45,000.

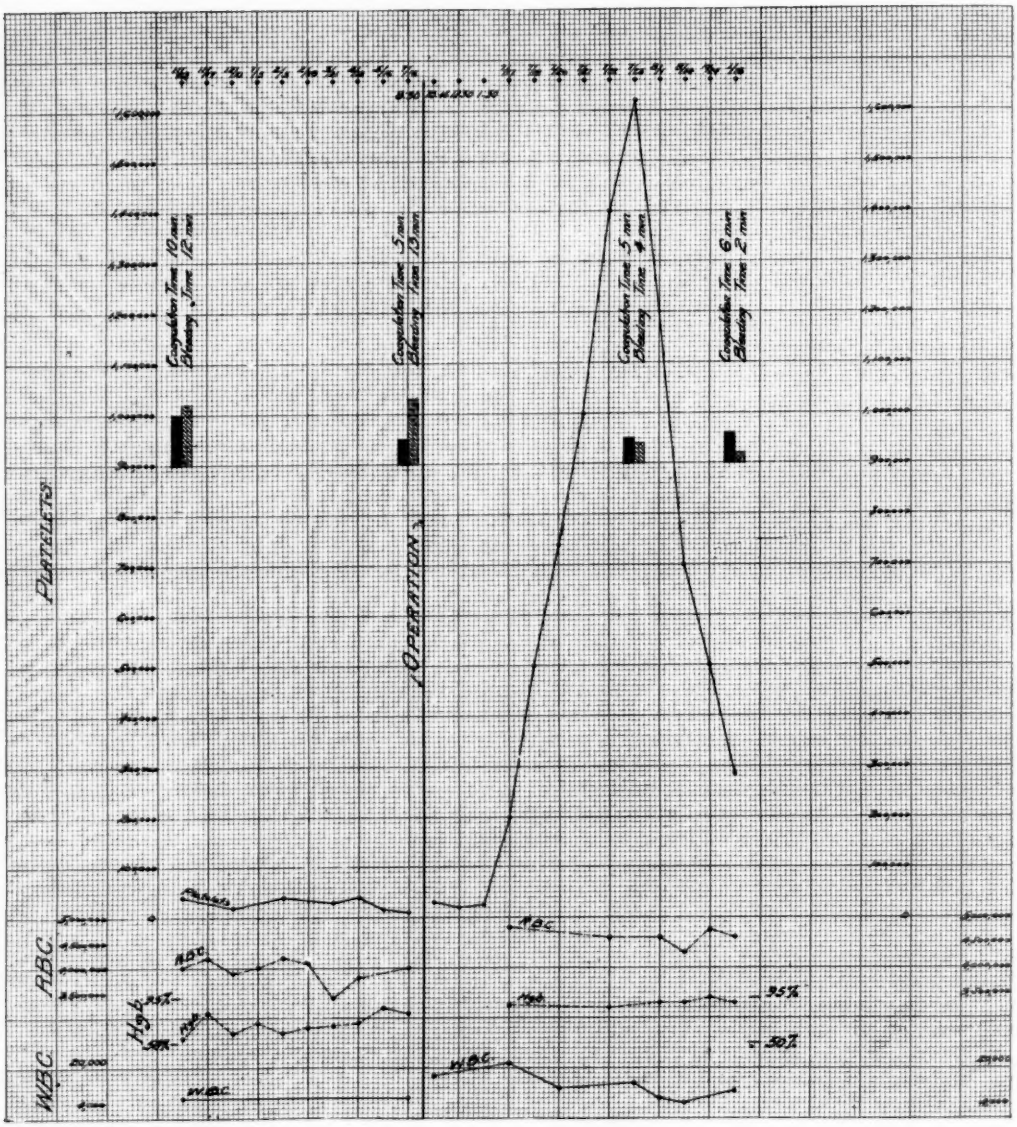
March 21, 1925.—Condition the same. R. B. C. 3,460,000. Hmb. 67 per cent. Platelets 32,000.

May 16, 1925.—Patient had been going to school regularly for about two months. Menstruation not excessive. Petechiae and ecchymoses present. Hmb. 85 per cent. R. B. C. 5,000,000. Platelets 16,000.

On July 15, 1925. she entered the hospital for operation. The physical condition was essentially the same as when first seen. The spleen was not palpable. Hmb. 80 per cent. R. B. C. 4,000,000. Platelets 12,000.

The patient's spleen was removed by Dr. Gwathmey at 9:45 on the morning of July 16, 1925. The platelets before operation numbered 13,000; the bleeding time was 13 minutes; and the coagulation time 5 minutes. The tourniquet test was positive. The W. B. C. were 5,750, with a normal differential formula. The clot was non-retractile. The spleen was removed with ease. There were a few adhesions over the upper pole. The spleen weighed

XUM



70 gm., which was considered to be a little enlarged for the patient's age and weight.

One hour after splenectomy the platelets had increased from 13,000 to 27,000; in two hours they were 23,000; in three hours 28,000. The following day the platelets had increased to 198,000. There was no difficulty in controlling the bleeding during operation, and there was no hemorrhage from the wound following its closure.

The platelets increased daily, reaching their highest point, 1,624,000, nine days after the operation. The petechiae began to disappear and no fresh petechiae occurred. On discharge, August 1, 1925, there were no petechiae or ecchymoses. The platelets were 1,200,000; the bleeding time 4 minutes; coagulation time normal; tourniquet test negative. The clot had not retracted in one hour, but there was some retraction in twenty-four hours.

The W. B. C. following operation behaved as one would expect; in one hour they had increased to 15,000, with 58 per cent P. M. N. The following day they numbered 20,000, with

85 per cent P. M. N. From that point they began to decrease and reached 10,000 on the fourth day. On discharge, the Hmb. was 85 per cent, and the R. B. C. 4,630,000.

August 14, 1925.—Two months after operation there was no return of petechiae. Menses had not been resumed. Platelets were 700,000.

September 19, 1925.—Patient had gained about 10 lbs. in weight. She had menstruated once with little bleeding. No return of petechiae. Hmb. 91 per cent. R. B. C. 4,000,000.

October 24, 1925.—Menses every three weeks, lasting three to five days with little bleeding. No petechiae seen. Hmb. 95 per cent. R. B. C. 4,750,000.

January 16, 1926.—Patient had continued well. Hmb. 91 per cent, R. B. C. 4,560,000. Platelets 288,000. Bleeding time 2 minutes. Clot showed retraction in one hour. The tourniquet test was negative.

September 2, 1926.—General condition good. Has been menstruating regularly with little loss of blood. Hmb. 90 per cent. R. B. C. 4,290,000. W. B. C. 5,450. Platelets 206,000. Bleeding time 4 minutes. Coagulation time 7 minutes. Capillary resistance test negative. Clot retracted in 1 hour.

Report on Spleen.—The spleen weighed 70 gm. The surface was smooth save for a few adhesions about the upper pole. The vessels were patent and not sclerotic. *Microscopical Examination.*—The Malpighian bodies were unusually well developed. The pulp and sinuses contained an abundance of mononuclear cells. There was no definite increase in connective tissue in the organ.

The interesting point in the case was the very high platelet count that occurred after splenectomy and the persistence of the count above normal figures.

TABLE I—THE BEHAVIOR OF THE PLATELETS, COAGULATION TIME, BLEEDING TIME, CAPILLARY RESISTANCE TEST AND CLOT RETRACTION BEFORE AND AFTER OPERATION.

Date	*Platelets*	*Coag. Time Min.*	*Bleeding Time Min.*	*Cap. Res. Test*	*Clot Retraction*
11/13/24	40,000	9	12	Positive	None
11/17/24	----------	----------	----------	----------	----------
12/10/24	20,000	----------	----------	Positive	----------
1/5/25	32,000	----------	----------	----------	----------
2/5/25	45,000	----------	----------	----------	----------
2/21/25	----------	----------	----------	----------	----------
2/28/25	----------	----------	----------	----------	----------
3/21/25	32,000	----------	----------	----------	----------
4/18/25	49,000	----------	----------	----------	----------
5/16/25	16,000	----------	----------	----------	----------
7/15/25	13,000	5	13	Positive	None
7/16/25 Operation					
1 hr. after operation	27,000	----------	----------	----------	----------
2 hrs. after operation	23,000	----------	----------	----------	----------
7/17/25	198,000	----------	----------	----------	----------
7/18/25	500,000	----------	----------	----------	----------
7/20/25	742,000	----------	----------	----------	----------
7/21/25	1,000,000	----------	----------	----------	----------
7/22/25	1,400,000	----------	----------	----------	----------
7/25/25	1,624,000	----------	----------	----------	----------
8/1/25	1,200,000	5	4	Negative	None in 1 hr.
9/19/25	----------	----------	----------	----------	Slight in 24 hrs.
10/24/25	----------	----------	----------	----------	----------
1/16/26	288,000	5	2	Negative	Rectractile

REVIEW OF LITERATURE

I have been able to find in the literature reports of forty-two cases in which the spleen has been removed. There are no doubt a much larger number which have not been reported, and perhaps there are a few reported cases which have been overlooked.

The first case was that of Kaznelson's which was operated upon in 1916. Brill and Rosenthal have the distinction of operating upon the

XUM

first case in this country in 1922. Only one case appears in the English literature.

Of these forty-two cases, four were acute and the remainder chronic. Three of the four acute cases died and the remaining one was reported as being only benefited by the splenectomy. In the chronic cases there were three deaths. One patient died during the operation; one died one month after from a subphrenic abscess; and the third, a case reported by Farley, died nine days after operation. The author states that the diagnosis was doubtful. Hemorrhage continued after splenectomy.

These figures are very interesting. It seems that the acute cases are either not benefited or are only slightly benefited. The poor results that have been obtained in operating upon acute cases suggest the possibility that the acute cases have not the same etiology or pathogenesis as the chronic cases. Perhaps these acute cases have been ones of acute aplastic anaemia, acute leukaemia, or one of the acute infectious diseases. There are some who think that the two conditions should be more definitely separated.

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St. Christopher's Hospital.

A CONSIDERATION OF THE PROGRESS AND VALUE OF CONSULTATION.*

By FRANK S. JOHNS, M. D., Richmond, Va.

A consideration of how best to obtain consultations is a question of timely importance. Failure to secure consultation is too often attended with dire consequences for the patient, surgeon and hospital. Fortunately for all, the day is now passing when the attending surgeon considered himself a sort of God infallible, and the wisdom of the entire hospital community as his own personal prerogative. Such progress is due to the thorough hospital training now generally given this generation of young physicians; to the organization of well-conducted staff meetings; and the standardization of hospitals.

The trained surgeon of today consistently invites consultations. He does so realizing that without such conferences poor work will result. Teaching hospitals require and encourage an exchange of ideas wherever there is reasonable doubt in a diagnosis. But more than other single factors, a well-rounded staff, holding its regular weekly meetings, will stimulate and increase the value of consultations. In such a meeting, constructive criticism is encouraged and all fatal cases are discussed in detail. The necessity of consultation here is at once apparent. Needless to say, when reporting a mortality, the man who has failed to take counsel with others will occupy an uncomfortable position. And next time he will either avail himself of this privilege or fail to attend the meeting. In the latter event his absence would prove an asset to the staff.

The so-called "team-work," often referred to in recent years, is not always what it should be. Even in our enlightened day, the presiding surgeon in private or politically controlled hospitals too often appears as coach, captain, manager and publicity agent of the whole outfit. A hospital conducted on such a plan will have few recorded consultations. An impartial follow-up system in such an institution would inevitably find tuberculous patients wearing a collar incision, and many a right rectus scar in cases of angina pectoris.

Consultations occur under different conditions. The ideal is a conference between general practitioner and surgeon. The consultant then does not undertake the treatment of the patient without the co-operation of the family physician. Under these circumstances, the

*Read before the Section of American College of Surgeons, Cumberland, Md., March 2-3, 1926.

lines which separate the two are well defined, there are no conflicts and no friction occurs. But not infrequently council is held between a "general specialist" and the family doctor. The lines of work practiced by this consultant are not well defined, and he infringes upon the general practitioner at every angle. Embarrassment frequently follows and little good results. Cordial relationship existing between the principals of a consultation promotes success. Unfriendly consultations court disaster. Consultants should always be selected by the physician in charge of the case. Too often the family wishes to call in a consultant on grounds of personal friendship. Unfortunately, such a man may be wholly lacking both in ability and in the spirit of co-operation, qualities equally essential in the successful consultant.

The best method of recording consultations is still a problem. Systematic training will do more to correct this defect in our technique than any other procedure. All conclusions should be recorded on the patient's chart. These notations should always be made in writing, and, if possible, immediately after the examination of the case. Delay precipitates incomplete records, or, as the Law puts it,—"contemporaneous explanation is the strongest."

In conclusion, I may add, the patient's illness should be kept always in the foreground. His welfare is the paramount consideration. Not infrequently we hear of the case that is sent on a weary round of specialist to specialist with apparently little accomplished. We must never forget, in our scientific zeal, that the patient is after all just seeking relief. Here, as everywhere, the golden rule gives us its good council and gentle rebuke—"Do ye unto others as ye would they should do you."

Johnston-Willis Hospital.

REPORT OF ONE HUNDRED CONSECUTIVE CASES OF SALPINGITIS.*

By G. H. REESE, M. D., Petersburg, Va.

The treatment of salpingitis of all three varieties—gonorrheal, puerperal, and tubercular—is perhaps as firmly standardized as any pathological condition known to the medical profession. This fact is proclaimed by the almost total neglect of this ever-present and formerly popular subject by writers since the advent of a complete reversal of treatment of these cases, which has gradually taken place during the past twenty-five years.

Formerly, the world over, a diagnosis of salpingitis meant an emergency operation, and almost universally these unfortunates were operated on immediately, regardless of acute pathology or etiology, the uniform result being a high mortality and morbidity.

Later, it was discovered by some patient investigators that these cases, if placed in bed at absolute rest, with an ice-bag on the abdomen, and given sedatives, laxatives, and proper diet, would almost uniformly improve—some to the point of complete recovery. Many would so improve as not to wish a subsequent operation, while all, with few exceptions, could be brought to a stage where operative measures could be undertaken with relative safety to life and decreased chances of future morbidity.

The publication of these facts led gradually to a complete reversal of management of these cases and, where rigorously applied, to a near negation of mortality.

Today no surgeon thinks of operating on a case of acute salpingitis without apology, unless it is complicated by some portentous condition that makes the refusal of such seem still more unwise,—certainly not until the temperature and leucocytosis has nearly or quite reached normal. Some surgeons, with much reason, go further and refuse to operate on these cases until six months or more after defervescence; while others defer operation if the patient's temperature shows a slight rise after a pelvic examination and a walk around the ward. Others wait only until the fever and leucocytosis have about reached normal.

This difference of procedure arises not from a difference of opinion as to the wisdom of waiting; but solely from the difficulty in some localities of providing sufficient hospital facilities for this class of patients. It is largely an economic question.

The best results following the most conservative line of treatment have been reported by Simpson. He operated by abdominal section on 475 consecutive cases, with a mortality of four.

The above remarks have reference to gonorrhoeal salpingitis alone.

Puerperal salpingitis is seldom of gonorrhoeal origin. It is usually a streptococcic infection. It does not tend to form dense or permanent adhesions, runs its course and usually results in more or less complete resolution

*Read at the meting of the Southside Virginia Medical Association, in Petersburg, September 14, 1926.

of the parts affected. It rarely affords a basis for even a late operation, and, under any condition, should be classed as a non-operative malady.

Tubercular salpingitis is generally found associated with tuberculosis of the ovaries, uterus and peritoneum. When the abdomen is opened, the tubes and appendix should be removed if conditions permit, and the patient placed on the usual treatment for tuberculosis.

The writer has endeavored to follow a conservative course in managing the cases reported in this paper, yet deviating at times through an erroneous diagnosis, or through yielding to insistence on the part of the patient for an operation, perhaps a little early, but desirable to her for its expected relief; and especially through the desire to get these patients out of the hospital and back on a self-supporting basis at the earliest moment consistent with reasonable safety.

Combined safety of operation and relief to the patient may be secured by vaginal section in those acute cases where a pelvic abcess or pyosalpinx present sufficiently low in the pelvis. This, however, except in those cases presenting well, is not unattended by danger to other viscera, and should be used in any case with caution, both as to diagnosis and surgical manipulation.

Abcesses high in the pelvis should be opened and drained as well as those in the lower pelvis. They are more dangerous. Palliative measures may be tried, but, if not speedily effective, an abdominal operation should not be delayed. The operation should, in acute abcess cases, be limited strictly to incision and drainage.

In draining salpingitis cases after a complete operation, the writer has followed the practice of draining as few as possible. When drains are used, and they are rarely used, they are almost without exception removed the following morning. A soft rubber drain is employed in those cases where rough suspicious tissue is left, and in those cases where hemostasis is uncertain.

In no case has any regret arisen for the early removal of these drains; while, on the other hand, the writer has noted the immediate cessation of pain, with prompt disappearance of nausea, distention, and threatened ileus, upon the removal of those allowed to remain for several days.

It is an old story that, after eight or twelve hours, the function of any kind of a drain in the abdomen ceases as an abdominal drain. If a sinus is desired to any particular area of infection, the drain may be left to effect this purpose; but it should be remembered that after eight or twelve hours it drains only the space it occupies. Again, if left too long, these so-called drains form dense adhesions, produce irritation and pain, and promote secondary infection and intestinal obstruction —the very evils most sought to be avoided. The necessity for abdominal drainage seems to disappear with the acuteness of the infection, and, if capillary oozing is controlled and no necrotic tissue is left, the demand for drainage is about obliterated.

The associated pathology found in these cases has in a large measure been reported in a previous paper to this society, and will be omitted here.

Every effort deemed consistent with safety has been made to conserve ovarian tissue. In spite of this attitude, it was a matter of surprise to find that in eleven cases both ovaries had been removed for one cause or another.

The appendix was removed in practically all cases.

Six of these patients were re-operated upon. On three, a subsequent supravaginal hysterectomy was performed. Two were later dilated and curetted, while from the sixth the left tube was removed, which seemed normal at the time of the first operation. In this latter case the diagnosis was in doubt; but a midline incision was made, revealing an inflamed appendix about half-way encapsulated within the right tube, and both in such a pathological condition as to leave the origin of the trouble uncertain. The left tube, seeming normal, was left to create its trouble later.

Eleven of these patients had abcesses other than tubo-ovarian. On three of these vaginal puncture was done. Two of these returned for a subsequent operation.

In this series of one hundred cases there were two deaths.

One death followed incision and drainage of a bilateral pelvic abcess extending high in the abdomen. This patient was so septic that she collapsed while undergoing anaesthesia and never fully revived. She died the next morning.

The other death was due to a septicemia from a double ovarian abscess. Most of this patient's pain and tenderness was on the right

side and, as she gave a history of six months' illness, her very acute symptoms were mistaken for those of appendicitis, with abscess formation. Both ovaries were found much enlarged and thoroughly purulent. They and the tubes were removed. The latter contained no pus or other fluid. The patient died the third day following operation of septicaemia, which she seemingly had on admission.

REPORT OF A CASE OF CYST OF THE THYRO-GLOSSAL DUCT.*

By E. G. GILL, M. D., F. A. C. S., Roanoke, Va.

Thyro-glossal cyst and fistulae may occur anywhere along the course of the thyro-glossal tract,—namely, from the foramen caecum to the body of the thyroid gland. For purposes of description, these locations have been tabulated by Klingenstein and Colp as follows:

1. Beneath the foramen caecum.
2. In the floor of the mouth protruding beneath the chin.
3. Suprahyoid.
4. Subhyoid.
5. On the thyroid cartilage or membrane.
6. At the level of the cricoid.
7. In the suprasternal notch.

When the base of the tongue is formed by the union of two lateral araches, an epithelial-lined canal persists, leading from the foramen caecum to the middle lobe of the thyroid. The upper portion of the duct may remain patent (lingual), while the lower region from thyroid isthmus to hyoid bone forms the thyroid duct (Ewing).

Patient, R. T. L., male, age 47, consulted me January 6, 1926.

Chief Complaint.—Has had choking sensations at times during the past year. This condition is worse when lying down. Patient thinks he has catarrh.

Past History.—The present symptoms began one year ago. During this time the patient has had no difficulty in swallowing and has followed his occupation of a trainman without inconvenience.

Examination.—Nose and accessory sinuses negative. Throat—tonsils apparently clean; laryngo-pharynx reveals a smooth, rounded pedunculated tumor situated between the base of the tongue and the epiglottis.

Physical examination, negative. Laboratory examination, blood Wassermann and urine negative.

Operation.—Tumor was seized with a hook and the pedicle was excised with a wire snare. No anesthesia. Patient left the hospital the following day and has since remained well. Dr. C. D. Nofsinger, Pathologist to the Lewis-Gale Hospital, made the following report:

"A cystic tumor about the size and shape of a partridge egg, measuring about 1¼ inches in one diameter and ¾ inch in the other diameter. There were no adhesions about the tumor. Upon sectioning, the tumor contained a thick milky looking substance which had an offensive odor. Microscopic examination revealed a cystic wall which was lined by several rows of epithelial cells. There was no malignancy found. From the location of this tumor and the pathological findings I believe it is a thyro-glossal cyst."

Cyst of the thyro-glossal duct is a rather rare occurrence. W. E. Sistrunk, in discussing a paper by Gessner, in 1913, before the Section on Surgery of the Southern Medical, stated that only thirty-one cases of 86,000 admissions to the Mayo Clinic were diagnosed as thyro-glossal duct cysts or fistulae. Klingenstein and Colp reviewed forty-two cases that were admitted to the surgical wards of the Mount Sinai Hospital from 1913 to 1924.

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*Read before the American Bronchoscopic Society, in Montreal, on May 2?, 1926.

THE MANAGEMENT OF ACUTE ABDOMINAL COMPLICATIONS DURING PREGNANCY.*

By ARTHUR S. BRINKLEY, M. D., Richmond, Va.

Formerly it was believed that the performance of surgical operations during pregnancy would almost inevitably bring about abortion or premature labor, even the extraction of a tooth being considered a severe procedure. At present, however, thanks to anesthesia and a perfected surgical technic, many operations can be performed at this time with but little additional risk. Accordingly, whenever a condition arises in the pregnant woman which imperatively demands surgical treatment, the necessary operation should be performed without hesitation. At the same time, if the indication is not pressing, it is advisable to defer interference until after delivery, so as not to subject the patient to an added strain. A review of the literature goes to show that amputations are not more dangerous than at other times. Williams removed a kidney on account

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XUM

of a rapidly growing hyper-nephroma at the end of the fourth month of pregnancy, and the patient was delivered spontaneously at term; and Schmidt in 1915 collected from the literature thirty-six cases in which nephrectomy was performed, and had no effect on the course of pregnancy in twenty-eight instances. Furthermore, numerous cases are on record in which perinephritic or broad ligament abscesses have been opened. Tumors of the generative tract can likewise be excised without great risk or markedly increasing the danger of premature labor.

In discussing the acute abdominal complications during pregnancy, it is perhaps advisable to take up for consideration the acute surgical conditions arising from the abdominal generative organs first.

Retroversion of the Uterus.—This develops into an acute surgical condition when the pregnant uterus is not only retroverted but incarcerated in the pelvis by dense adhesions due to a previous infection and when all attempts to replace it by posture and manipulation through the vagina have failed. Abdominal section is certainly indicated to release the adhesions and replace the uterus in its normal position and hold it there by one of the numerous methods for shortening the round ligaments. The usual post-operative care should be observed, being careful to emphasize that the patient should be kept quiet with morphine, the bladder emptied regularly by catheterization and encouraged to lie on her side. Cases are very occasionally met with where it is impossible for the operator to restore the pregnant uterus to its normal position without lessening its size. Under these circumstances the uterus should be opened by a longitudinal incision in its anterior wall. Its contents should be removed by the gloved fingers and a finger be passed through the cervix to be sure of the escape of lochia. The uterus should then be closed by suturing the wound in layers and restoring to its normal position by shortening the round ligaments.

Fibro-Myomata of the Uterus.—The growth of these tumors is apparently in many cases stimulated by pregnancy. While many patients having these tumors do not conceive, their presence is not a positive cause of sterility; hence, it is not an infrequent occurrence to find pregnancy and a tumor existing at the same time. So long as they remain essentially sub-peritoneal they usually require no attention. However, with the pedunculated type one may be confronted with an acute condition which may assume serious proportions. This is best illustrated by briefly narrating a case which I recently had the pleasure of seeing with one of my colleagues. A primipara, age thirty, about five months pregnant, had noticed a lump in the right side of her abdomen for sometime which was freely movable and gave practically no discomfort. About twenty-four hours before I was called in consultation, she developed marked pain, tenderness, and rigidity in her lower right abdomen. On examination, a globular mass could be felt just above and continuous with the brim of the pelvis on the right. Her abdomen was so tender that very little manipulation was tolerated, but apparently the mass was fixed to the anterior abdominal wall. Temperature 101, pulse 110, urine practically negative, leucocyte count 21,000, polys 85. We were inclined to believe that the mass was any one of three things—a simple ovarian cyst or dermoid with a twisted pedicle and subsequent infection, a tubo-ovarian abscess, or an appendiceal abscess which had formed in the iliac fossa. We decided to wait until the next morning before resorting to surgery. She was seen again the next day at 9:00 A. M., when the condition presented an entirely different picture. The mass was entirely out of the pelvis, freely movable, and about the size of a small grapefruit. There was some tenderness over the right lower abdomen but nothing like the night before. The mass was rather firm, with a slight doughy consistency, urine practically negative, leucocyte count 12,000, polys 79, temperature 100, pulse 90. After careful examination, we decided it was very probably a pedunculated fibroid which had become partially strangulated by twisting of the pedicle, and the best course to pursue was one of watchful waiting. She was very much better the next day and I understand that she has had no serious trouble since, although the mass is still there.

Ovarian Tumors.—These often complicate pregnancy. Advanced pregnancy and an ovarian tumor of large size cannot exist in the same individual at the same time; therefore, when an ovarian tumor can be diagnosticated. it is usually in early pregnancy, or else the tumor is a small one. It has never been shown that pregnancy stimulated the growth of such

tumors, but it is a matter of not infrequent occurrence that when pregnancy suggests a thorough examination of a patient, an ovarian tumor is found already existing. Pregnancy complicates the existence and development of a small ovarian tumor, for the tendency during pregnancy is for the ovarian tumor to become twisted on its pedicle. This is a serious accident, for the circulation of the tumor may be interfered with and gangrene of the tumor and resulting toxemia for the patient may develop. It is of importance, then, to recognize the seriousness of the situation early and, if the condition is not relieved in due time, abdominal section should be made without delay and the cyst removed intact.

The usual post-operative care with plenty of morphine hypodermically to prevent abortion is indicated.

If the tumor complicates an advanced pregnancy and labor develops, the pressure of the presenting part may cause a rupture of the tumor, with the escape of its contents into the pelvic and abdominal cavities. The irritation of such contents will cause peritonitis and demand surgical intervention for incision and drainage. These patients should be given the recognized supportive treatment for peritonitis with plenty of morphine to prevent spreading of the peritonitis by active peristalsis.

There can be no question concerning the importance of removing an ovarian tumor complicating pregnancy. It may be difficult to decide when the tumor should be removed. A small tumor should be removed as soon as the diagnosis of its presence is made. This exposes the patient to the risk of the interruption of pregnancy, but such risk is less than that entailed by twisted pedicle of the tumor and the complications which its growth may produce. If a tumor is discovered late in pregnancy, or the discovery is not made until shortly before the end of pregnancy, opinion is divided regarding the choice of time at which the tumor should be removed. It has been suggested that a small tumor in the pelvis interfering with the descent of the child may, under anesthesia, be pushed up above the pelvic rim, labor may be allowed to develop and, during the puerperal period, the tumor may be removed. If the tumor is large, the suggestion has been made that it be tapped, its size reduced and the uterus then emptied spontaneously through the vagina, or by vaginal operation, followed by the removal of the tumor.

Davis is of the opinion that an ovarian tumor, whether cystic or solid, or containing both cystic and solid material, should be removed as soon as possible after its presence is discovered. If, at the time of removal, adhesions are absent and the pedicle of the tumor so situated as not to interfere with the action of the uterus, spontaneous labor may be awaited. If, however, adhesions are such as to interfere with the action of the uterus, or the intra-abdominal conditions are so complicated that uterine action may be dangerous for the patient, then the obstetrician may prefer to empty and close the uterus first, and then remove the tumor at the same operation. Surgical experience and judgment must decide these questions.

Salpingitis.—Acute salpingitis is a very serious complication of gestation, and without doubt is the hidden cause of many cases of sepsis intra-partum and post-partum. During gestation the diagnosis is almost impossible; a peritonitis will be assumed, and if the symptoms are urgent, laparotomy will have to be performed. During pregnency a departure should be made from the method of treatment of pyo-salpinx. Labor will almost certainly rupture the abscesses, and it is, therefore, best to remove the sacs. It is a question whether it is advisable to wait for the contents to become sterile. If at operation there is reason to believe that the streptococcus is associated with the gonococcus, it may be wisest to extirpate the uterus at the same time that the tubes are removed, but the prognosis is bad in such cases.

Pelvic Abscess.—When this condition complicates pregnancy, evacuation with the least possible disturbance of the pelvic tissues is required. This should be done under surgical anesthesia by a broad transverse incision across the posterior vaginal wall, followed by the introduction of one or two fingers of the gloved hand and a gentle but thorough examination of the tissues. A large, perforated soft rubber tube may then be inserted and retained in place by a light packing of 10 per cent iodoform gauze. The head and trunk of the patient should be raised somewhat in bed to encourage free drainage. Pain should be controlled by hypodermic injections of morphine. The tube should be removed when the dis-

XUM

charge diminishes markedly, but the gauze packing should be allowed to remain so long as it is draining efficiently. No further manipulation than the removal of the tube and packing should be practiced, and after this has been done, it is well, if possible, to avoid douching and sponging of the vagina, maintaining strict external cleanliness and antisepsis.

Extra-Uterine Pregnancy.—As soon as an unruptured extra-uterine pregnancy is positively diagnosed, its immediate removal by laparotomy is urgently indicated, since rupture may occur at any time and the patient die from hemorrhage before operative aid can be obtained. The importance of immediate operation cannot be too strongly emphasized, and all methods of treatment which aim at destroying the foetus and thus terminating pregnancy without operation are absolutely unjustifiable.

Although Stephen Rogers, in 1867, suggested the propriety of performing laparotomy for the purpose of checking hemorrhage from a ruptured tubal pregnancy, Lawson Tait, in 1883, was the first to undertake such an operation. After he had demonstrated the ease with which it could be performed and the surprisingly good results obtained thereby, the procedure came into general use.

Whenever we see a possibly pregnant woman in a state of profound collapse, and presenting a deathly pallor of the face, a subnormal temperature, and other symptoms of intra-abdominal hemorrhage, immediate operation is demanded, unless, indeed, her condition is so desperate that death is imminent.

The abdomen should be opened rapidly under local anesthesia, if necessary, and the bleeding tube and mass clamped off quickly to control hemorrhage. The blood clots are then removed and the field of operation cleaned up, after which the operator can complete the operation without fear of losing more blood. After the foetal sac has been removed, it is not advisable to attempt to remove all the blood from the peritoneal cavity unless the patient's condition is fairly satisfactory. Opinion is divided on the subject of removing the opposite tube. If the patient has no children, it should be left unless it is so badly diseased as to render conception impossible; then, again, the patient's condition may be such that it would be far better to let it remain than to remove it at this time.

In desperate cases it is advisable to attempt to revive the patient temporarily by direct transfusion of blood before beginning the operation, and to continue the transfusion after its completion. In less serious cases the subcutaneous or intravenous infusion of normal saline solution or 5 per cent sterile glucose solution should be begun while the necessary preparations for the operation are being made. There is a difference of opinion among obstetricians as to the time of operation. Davis believes, and it is the author's opinion, that all cases of extra-uterine pregnancy should be subjected to operation as soon as practicable, regardless of the condition of the patient. The patient should be given supportive treatment after operation, foot of bed elevated, heat applied to body, and transfusion of whole blood, as indicated.

Appendicitis.—Appendicitis probably occurs as frequently during pregnancy as at other times, but until fairly recently, it was usually overlooked. Renvall, in 1908, recorded twenty-five personal cases, and collected 253 cases from the literature.

It should be regarded as a very serious complication, as many die if not operated upon, while the surgical procedures undertaken for its relief are frequently followed by premature labor.

One should always consider the possibility of appendicitis when a pregnant woman complains of pain in the right side of the abdomen, associated with an elevation of temperature and pulse, provided some more satisfactory explanation of the condition cannot be found. It should, however, be remembered that pyelitis or inflammatory conditions of the appendages may give rise to identical symptoms at the time af labor. During the puerperium its recognition is still more difficult, and many women have died from peritonitis resulting from a perforated appendix with the diagnosis of puerperal infection.

Operation is indicated in all cases in the early months. Later in pregnancy the presence of the enlarged uterus renders it difficult to expose the parts satisfactorily and may seriously interfere with proper drainage, should it prove necessary. I am of the opinion, however, that operation should be performed, even in the late months of pregnancy if the symptoms, clinical and laboratory findings, indicate that there is a likelihood of perforation.

In the early months abortion is not likely to occur, provided the uterus has not been subjected to manipulation; in the latter months, premature labor is frequently observed, particularly in cases of abscess formation. It may be due to one of several factors,—manipulation of the uterus, fever, and, when an abscess has formed, to the direct transmission of bacteria from it to the foetus. The recognized post-operative treatment for appendicitis and its complications should be observed.

Infection and Inflammation of Meckel's Diverticulum.—This rare complication may result from the same causes which produce infection in the appendix. In recognizing the condition, the obstetrician must not be deceived by the reflected pain on the left side of the abdomen, which often accompanies appendicitis. Should this unusual condition develop, it would probably scarcely be recognized accurately, except upon abdominal section. Then the treatment for the condition should naturally be employed. In dealing with this complication of pregnancy, the question of first emptying the full term uterus would again come up for consideration, and unquestionably this should first be done, the ample median incision giving abundant room for the treatment of the infection of the diverticulum.

Acute Cholecystitis.—It is the disposition of obstetricians and surgeons at the present time to palliate cholecystitis complicating pregnancy and, when a woman has recovered from gestation, to drain or remove the gall-bladder. On the part of the general surgeon, there is a marked reluctance to operating on the gall-bladder in pregnant women. Unquestionably in advanced pregnancy, the congestion caused by pregnancy is an unfavorable element. In extreme cases where infection of the gastro-intestinal tract has attacked the appendix and gall-bladder as well, it may be necessary first to perform Cesarean section; second, to remove the appendix; and, third, to drain or to remove the gall-bladder. Obstetricians are coming to believe more and more that in the event of an intra-abdominal condition of importance complicating pregnancy at term, it is safer first to empty the uterus and then to deal with the complicating condition.

Gastric or Duodenal Ulcer.—Every effort should be made to palliate the condition until the pregnancy has terminated. In perforation, the situation is most serious, and it is imperative that something be done at once. With an existing peritonitis, to do a Cesarean section and leave the uterus would almost certainly be fatal from a secondary infection. It would be advisable to close the perforation, and do a jejunostomy, so as to give the patient feeding through the tube, and run the risk of the wound healing before labor sets in. On the other hand, should obstruction be so great as to occlude the pyloric end of the stomach and a gastro-enterostomy had to be done, it would be next to impossible without emptying the uterus first. The post-operative care would be along the recognized lines of treatment for general peritonitis.

Peritonitis During Pregnancy.—This usually occurs from perforated appendix, acute perforation of gastric or duodenal ulcer, or ruptured pus tubes. Treatment of the conditions enumerated have been considered. In addition, the peritonitis must be treated by recognized methods. The condition is exceedingly grave.

Intestinal Obstruction.—This rare complication of pregnancy should be treated upon general surgical principles. Enterostomy through a very small incision is the operation of choice. If there is evidence of gangrene, resection must be done. The post-operative treatment is supportive.

Summary

1. The performance of surgical operations in the pregnant woman is not considered with nearly as much gravity as was formerly the case.

2. Whenever a condition arises in the pregnant woman which imperatively demands surgical treatment, the necessary operation should be performed without hesitation.

3. Fibromyomata complicating pregnancy, as a usual rule, require no attention, but with the pedunculated type one may be confronted with an acute condition which may assume serious proportions.

4. There is a tendency during pregnancy for an ovarian tumor to become twisted on its pedicle, and there can be no question concerning the importance of removing it by surgical interference. Opinion is divided as to the time it should be removed. The author believes that surgical experience and judgment should decide this question.

XUM

5. During pregnancy a departure should be made from the method of treatment of pyosalpinx. Labor will almost certainly rupture the sacs, and it is, therefore, best to remove them.

6. An unruptured extra-uterine pregnancy should be removed just as soon as a positive diagnosis is made, and ruptured cases should be subjected to operation as soon as practicable, regardless of the condition of the patient.

7. Appendicitis probably occurs as frequently during pregnancy as at other times, and one should not hesitate to operate, even in the late months of pregnancy, if the symptoms, clinical and laboratory findings, indicate that there is a likelihood of perforation.

8. Undoubtedly, many women have died from peritonitis resulting from a perforated appendix or ruptured pus tubes with the diagnosis of puerperal infection, and the attending obstetrician directly or indirectly blamed for negligence in the management of the case.

9. It is the consensus of opinion among obstetricians and surgeons that palliative treatment should be used in acute cholecystitis complicating pregnancy.

10. Every effort should be made to palliate gastric or duodenal ulcer until pregnancy has terminated.

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601 *Medical Arts Building.*

ADYNAMIC ILEUS IN UROLOGY.*

By R. M. LeCOMTE, M. D., Washington, D. C.
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I am taking the liberty of presenting to you tonight, instead of the conventional case report, the essential features in two cases of a condition unusual to urologists, together with notes from two other cases which influenced my treatment of these.

While doing post-mortem work at the old Washington Asylum Hospital in 1917 I had the opportunity of doing a section on a young white man who had died from adynamic ileus shortly after a simple appendicitis operation. There was a small area of peritonitis in the region of the caecum but no general peritonitis. The large bowel was filled but not distended with gas. The small intestine and stomach were greatly distended with gas and fluid so that the diameter of the latter was perhaps two inches throughout its entire course. This dilatation ceased abruptly at the ileocecal valve. The small bowel hung in festooned loops from the mesenteric attachment and filled up the lateral gutters of the abdomen. Fluid fecal matter held these loops down firmly at either side of the vertebral column so that there was no gut between the vertebral column and the anterior abdominal wall—an efficient water-trap. Efforts to move this fluid along the canal by manual manipulation succeeded only in moving a part of the fluid into the next loop: an endeavor to accomplish the same thing by tilting the body from one side to another succeeded in emptying some of the loops, since, when the body was turned onto the back again a portion of the stagnant fluid would remain on the side from which the body had been turned, leaving some loops free from fluid. It was evident that if one were to make a diagnosis of this condition during life, the proper therapy would consist in turning the patient at frequent intervals so that the same thing might be accomplished as was effected by turning the body of the cadaver. The fluid would progress along the canal either towards the stomach or rectum and could be removed by a stomach or rectal tube, thus giving the overstretched bowel musculature an opportunity to contract and regain its normal tone.

The first opportunity that I had to apply this idea clinically came in 1919 in a woman whom I had referred to a colleague for double pyosalpinx. Some two weeks after the operation this patient developed soft tympanites and complete obstruction, characteristic of adynamic ileus. The patient had slight fever, a weak thready pulse, and a leukocyte count. With the patient on her back the abdomen was flat and considerably broadened; the anterior part was tympanitic but the flanks were dull. When she was turned to one side or the other the upper flank became tympanitic at once, while the lower one broadened out and was dull on percussion. She was turned from one side to the other and onto the back and abdomen every two hours, and within twelve hours she began to pass gas and fluid per rectum and the distended abdomen went down. The result was quite satisfactory.

On October 13, 1925, I did a right nephrectomy for tuberculosis on a man aged fifty-one

*Read before the Galen Hippocrates Society, April 18, 1926.

years. On the third day his bowels refused to move despite enemata and peristaltin injections: later that day his abdomen became distended, the dependent portion being dull, with dullness changing rapidly on change of position. Fluids by mouth were stopped and salt solution given hypodermically, and he was turned every two hours as in the preceding case. In this instance the fluid moved towards the stomach and he began to vomit. His stomach was washed on the fifth day; his bowels moved normally on the sixth day, and he was able to retain fluids taken by mouth from that time on.

On January 4, 1926, I did a one stage prostatectomy on a man aged forty-eight years. Three days later his abdomen became distended, the bowels could not be moved by enemata, and vomiting ensued. The physical signs in the abdomen were those noted in the other case. In this instance I was not quite sure that the peritoneum might not have been opened and the rent overlooked at the time of operation, so that a mechanical or inflammatory obstruction was in my mind. Accordingly, we waited until the fifth day before instituting the turning treatment. In this instance, no fluid was obtained by rectum and lavage of the stomach was not altogether successful. On the sixth day a duodenal tube was inserted and left for twelve hours, during which time sixty ounces of liquid fecal matter passed through it. The distention was relieved and his bowels moved on the seventh day. His convalescence was otherwise uneventful.

In the diagnosis of adynamic ileus, the essential features to be noted are complete obstruction with abdominal distention, with dullness in the flanks, the dullness shifting rapidly to that part of the abdomen which is most dependent. Vomiting is ordinarily present, and may or may not be fecal in character. Differentiation from mechanical obstruction can never be altogether certain, and must be made from the history, symptoms and the type of operation done.

Having been successful in three cases, I may be over-enthusiastic about the treatment employed and may have several deaths due me, but I submit it to you for your consideration.

The essential features of this treatment are:

(a) Withholding of all food and giving fluids subcutaneously, if necessary.

(b) Turning patient from side to side and on to the back and abdomen at such intervals as may be convenient.

(c) The use of the rectal and duodenal or stomach tube.

In the one instance in which I have used it, the duodenal tube was much more efficient and less irksome to the patient than the stomach tube used in the other cases.

References to ileus following operation are scarce, but all writers report a high mortality. In 276 cases, Deaver and Ross noted a mortality of 42 per cent; other observers give varying figures, but in none of the articles studied was it possible to accurately separate the adynamic variety from those due to true mechanical or inflammatory obstruction. This is probably due to the fact that most of the cases reported were ones in which operation was secondary and, during this necessarily hurried procedure, careful examination of the abdominal contents could not be done.

Clinical instances of ileus not post-operative are noted by Eisendrath who reported (*Surg., Gynec. and Obstet.*, 1916, 22, 6, page 699) three cases, two associated with renal stone and one with hyper-nephroma. He discusses the cause of the condition as related to its appearance in association with kidney diseases, and believes that it comes from irritation of the splanchnic nerves which are in connection with the kidney. He illustrates these connections very distinctly with a diagram from Lucianni.

1801 *Eye Street, Northwest.*

DIFFERENTIAL DIAGNOSIS OF SOME OF THE MORE COMMON SKIN DISEASES.*

By W. F. MANLEY, M. D., Roanoke, Va.

Probably at least one-third of all diseases of the skin fall under what we call the papulosquamous eruptions. By this term we mean that the essential primary lesion is a papule covered by a squama, or scale. Papules are solid elevations of the skin varying in size from a pin-head to a pea. Any elevation larger than a pea is no longer a papule but a nodule. Papules vary in shape—conical, acuminate, plane surfaced, or umbilicated; their outline may be round, angular, or irregular. They vary in consistence—soft and hard. In color they may be yellow, red, lilac or the color of the normal skin.

The scales may be fine and powdery or

*Read before the Southwestern Virginia Medical Society, at Blacksburg, September 9 and 10, 1926.

branny (furfuraceous). They may be loosely or firmly attached. They may be stratified, as in psoriasis, in the form of thin flakes, or only partly attached, as in exfoliating dermatitis.

The most common papulo-squamous eruptions are, in order of their frequency:

1. Eczema.
2. Psoriasis.
3. Seborrheic dermatitis.
4. Papulo-squamous secondary syphilides.
5. Tinea versicolor.
6. Pityriasis rosea.
7. Lichen planus.
8. Lupus erythematosus.

Only the high spots in the differential diagnosis can be considered:

1. *Eczema.*—Its prevalence is estimated at from 18 to 40 per cent of all cutaneous affections. In recent years there has been a tendency among dermatologists to avoid the use of the term, eczema, and a large number of conditions previously described as eczema have been shown to be separate disease entities. Sabouraud, Whitfield, Ormsby and Mitchell have shown recently that many of the so-called "eczemas" of the feet are, in the majority of cases, a local infection with the epidermophyton inguinale. Such cases are now called epidermophytosis. The word "eczema" is reserved for cases, the origin of which we admit ignorance and whose clinical picture has definite fixed characteristics. These fixed characteristics are redness, superficiality, weeping and fissuring in acute cases, and, if chronic, thickening and infiltration. The subjective symptoms of itching and burning are usually well marked.

Eczema may occur anywhere on the cutaneous surface, especially on the exposed parts and the flexor aspect of the extremities.

2. *Psoriasis.*—This disease constitutes about 2.7 per cent of all dermatoses according to the figures of the American Dermatological Association. It is a chronic, occasionally acute, inflammation of the skin, characterized, primarily, by circular red papules, more or less completely covered with dry, greyish or silvery, stratified, imbricated, friable scales. It is not very itchy as an ordinary rule. It may occur anywhere, but it is especially fond of the extensor aspects, especially the elbows, knees and tibial crests. The scalp is very commonly involved. The individual papules show a marked tendency to become confluent, forming patches which are sharply defined and of a dull reddish hue. It is not infectious, may begin at any age, and is very liable to recur.

3. *Seborrheic Dermatitis.*—This is a fairly common disease, constituting about 2 per cent of all skin affections. The disease usually begins on the scalp about the hair follicles in the form of small papules, which may be discrete or grouped and coalescent. The lesions are covered by soft loosely adherent yellow greasy crusts. The hair is usually greasy but may be very dry. The skin beneath the crusts is markedly inflammatory. There is a tendency to involve the glabrous skin by downward extension. When this occurs, it usually does so either back of the ears, or through the midline of the face; then the forehead, eyebrows, nose, naso-facial and naso-labial grooves, the upper lip, and the chin are affected. In addition, the body and limbs are often involved, those parts most often affected being the sternal and interscapular regions. The itching is mild. Unless treated, it extends slowly and persists indefinitely.

4. *Papulo-Squamous Secondary Syphilides.*—Here we have a generalized eruption of discrete, "shotty," ham colored papules. Polymorphism is a striking feature. As a general rule the papulo-squamous type of lesion is more or less localized to symmetrical areas of the face, neck, and frequently the palms and soles are affected. The remaining portion of the body presents a purely papular eruption. Itching is usually absent except in the follicular type.

The mucous membranes are very apt to become involved. The most frequent and characteristic type of syphilis of the mouth is the mucous patch, sometimes called the erosive syphilide. This is round, or, more frequently, oval, and is nothing more than a syphilitic papule altered by environment. The most common site is on the inner surface of the lips, especially at the angles of the mouth. The surface of these patches is usually covered by a gray shining membrane that, when detached, reveals an underlying superficial ulcer. These patches are sharply circumscribed, and there is usually no surrounding inflammatory areola.

Other clinical aids, of course, are the generalized adenitis, the constitutional symptoms, such as sore throat, headache and backache, and, last, but not the least, the accompanying positive Kahn and Wassermann reactions.

5. *Tinea Versicolor.*—This is an infectious

disease of the skin caused by the microsporon furfur. It is very common, constituting about eight-tenths of one per cent of all dermatoses. It consists of many pin-head to pea-sized yellow fawn colored macules and maculo-papules covered with a fine furfuraceous scale. The lesions are usually confined to the trunk, especially the chest and interscapular regions.

The course is chronic and, if untreated, persists for years, and, in as much as it usually causes no subjective symptoms, it is frequently neglected by the patient.

6. *Pityriasis Rosea.*—This condition constitutes five-tenths of one per cent of all skin diseases. It often begins with a sore throat, some fever and malaise, and the disease is distinctly self-limited, terminating in a spontaneous cure in from six to eight weeks.

Usually there is first noticed a "herald patch," a red scaly patch of variable size up to about two inches in diameter. This may appear anywhere except on the face, hands or feet. A day or two later there is a sore throat and some general malaise, and then the widespread eruption generally manifests itself. This eruption may be macular, maculo-papular or distinctly papular. At first the color is bright rosy red and the lesions are covered with a small furfuraceous, cigarette-paper scale. After several days central involution takes place and they become a yellow fawn color in the center with a raised rosy border, covered with a fine scale. At the sides of the trunk the oval patches tend to be arranged with their long axes parallel to the ribs. This is a very helpful point in diagnosis.

The itching is variable. When pruritus is present, it is usually more noticeable at night. There is usually an associated general adenitis, as in syphilis.

7. *Lichen Planus.*—In frequency, lichen planus constitutes about five-tenths of one per cent of all cutaneous affections. In typical cases the eruption appears suddenly as an acute generalized outbreak of reddish-violet flat-topped (planus) polygonal papules. The lesions are often umbilicated and tend to coalesce. The itching is usually intense. The areas of predilection are the flexor surfaces of the wrists, arms, abdomen, legs, back of hands, genitalia and oral cavity. The face, scalp, neck and palms are spared.

The lesions on the mucous membranes of the tongue and mouth consist of bluish-white milky patches and lines arranged in mosaic. These mucous membrane lesions are practically always mistaken for leucoplakia. The mucous membranes of the genitals are also commonly involved.

Lichen planus is a disease of adult life. It is slow in both evolution and involution, and when it subsides a brownish pigmentation is left which slowly fades away.

8. *Lupus Erythematosus.*—This constitutes about one-third of one per cent of all dermatoses. The chronic type is easy to diagnose if one keeps in mind the cardinal points, namely, its roughly symmetrical distribution over the nose, cheeks, ears and scalp. In very rare acute cases only does it become generalized.

The lesions are reddish papules, covered with a very adherent grayish scale, tending to become confluent in discoid patches, spreading peripherally and clearing in the center, leaving atrophic scars. Lupus erythematosus never ulcerates. It is extremely chronic and its course of evolution is slow.

The foregoing skin diseases constitute probably 40 per cent of all skin affections and their recognition is of far greater importance than merely from a diagnostic pastime.

Many a case of pityriasis rosea has been called syphilis and the patient subjected to an intensive course of antisyphilitic treatment and left to spend his remaining days in fear of some dreaded complication in later years.

Thousands of cases of epidermophytosis are yearly mis-diagnosed as "eczema" and efforts to run down foci of infection or some internal causative factor result in subjecting the patient to needless gastric analyses, teeth extraction, etc.

In order to intelligently treat any of these skin conditions, we must at least keep the more salient diagnostic points in mind.

409 *MacBain Building.*

DIAGNOSIS OF DISEASE OF THE NASAL ACCESSORY CAVITIES.*

By C. E. BOWLES, M. D., Pulaski, Va.

The diagnosis of disease of the nasal accessory cavities is a subject more or less familiar to you all but one which should receive our most careful consideration. It is not only fraught with many immediate dangers, but is often the causative factor underlying numerous systemic conditions, to say nothing of the great economic lost due to weakened mental

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faculties resulting from pressure and toxic absorption.

I have selected this as my subject, not that I hoped to add anything new to your present knowledge, not to flaunt the banners of the rhinologist, but simply to refresh your memory and call attention to a series of conditions in which an early diagnosis is fruitful of much good, while negligence and a delayed diagnosis may result in dire consequences. I recall with regret the many cases of frequent and chronic head colds, hay fevers, headaches, ocular muscle errors, enlarged lymph glands of the neck, nasal blockage and discharge, optic neuritis, and two cases of meningitis, that came to my attention during the eight years I was in general practice, and for which I usually prescribed some simple symptomatic remedy without examining the nose or even suspecting disease in the nasal accessory cavities as the causative factor. It is my mistakes of the past that prompt me to urge a more careful examination of the nose and accessory sinuses in all cases where the above symptoms are found, that you may be spared the mortification and chagrin of my experience.

The symptoms which should arouse our suspicion of disease in the nasal accessory cavities are headache, chronic or repeated head colds, hay fever, nasal discharge, blocking of the nasal passages, enlarged lymph glands of the neck draining this area, confused mental processes, symptoms of focal infection, edema of the eye-lids, conjunctival, ciliary and scleral injection, lachrymation, photophobia, reduced vision, restricted field for form and color, relative scotomata and enlargement of the blind spot. Muscular errors with diplopia corresponding to the displacement of the eyeball, muscular paralysis and retrobulbar optic neuritis corresponding to the amount and position of the pressure and to the transference of infection.

The headache usually begins in the region of the affected sinus, but, as the pressure is increased within the sinus, it may be referred to other regions of the head and in some cases to the neck muscles, shoulder and elbow. I have seen one case of ethmoid empyema in which the pain extended to the wrist, and was not relieved until free drainage was established. In the second and third stage of sinusitis, when the sinus is distended with secretion or pus, there may be some localized tenderness and swelling. Likewise, certain ocular symptoms may result from the pressure or transferred infection, and vary somewhat with the sinus involved.

Distention of the frontal sinus generally manifests itself at the upper inner angle of the orbit and pushes the eye-ball downward and outward. Distention of the ethmoid results in a swelling at the inner angle of the orbit and pushes the eye-ball outward. Distention of the sphenoid sinus should cause a displacement of the eye-ball directly forward and may result in sudden blindness from pressure on the optic nerve. Distention of the antrum may result in a swelling just back of the orbital margin and cause an upward displacement of the eye-ball.

Having seen the effect of distention of the sinuses on the ocular muscles, it might be advisable to hurriedly review the location of the individual sinuses and their relation to development and important structures. The frontal sinus is an off-shoot of the ethmoid and appears in the orbital plate between the first and third year. By the seventh year it has attained the size of a small pea; about the age of puberty it begins to extend and forces its way into the frontal bone. In adult life it varies greatly in size as to height, width and depth, and on the two sides. Sometimes it is absent on one or both sides, or it may be duplicated. It drains through the frontal duct into the infundibulum and empties through the hiatus semilunaries into the middle meatus. The attachment of the middle turbinate to the external wall of the nose marks the line of division between the superior and middle meatuses and also marks the line of division between the anterior and posterior ethmoid cells. The anterior cells lie in front of and below it, while the posterior cells lie above and behind. These cells, from nine to fourteen in number, are present at birth and lie in close relationship to the inner wall of the orbit, extending from the frontal sinus backward to its apex.

There may also be accessory ethmoid cells in the middle turbinate and uncinate process and, when present, drain into the middle meatus. The posterior cells are usually fewer in number, but larger in size than the anterior cells, though sometimes they occupy nearly all of the ethmoid labyrinth and extend to the anterior portion of the nose. Likewise, the anterior cells sometimes extend backward almost to the sphenoid bone. The anterior and accessory ethmoid cells with the frontal sinus and antrum drain into the middle meatus,

while the posterior ethmoid cells and sphenoid sinus drain into the superior meatus. In early childhood, the ethmoid cells are well defined and are often the subject of disease. They are a frequent source of orbital infection and of optic nerve disease, as well as insufficiency of the internal recti muscles and confused mental processes. The proximity of the anterior ethmoid cells to the lachrymal fossa may lead to a secondary dacryocystitis, while the frontal sinus and antrum are frequently secondarily involved. The ostium of the posterior ethmoid cells opens into the posterior portion of the superior meatus, and its secretions drain downward and backward over the posterior half of the middle turbinate into the nasopharynx. Some of the secretion flows over the border of the middle turbinate, between it and the septum, through what is called the olfactory fissure.

On account of the deep situation of the posterior ethmoid cells, external tenderness is not present when they are diseased, though exophthalmus may result when the os planum is pushed outward behind the eye-ball by the retained secretions. This would give rise to diplopia and to a circumscribed visual field, especially for colors. The optic nerve may be injured as it passes over the roof of the sphenoid sinus. In closed empyema of the sphenoid sinus, the thin bony wall of the roof is softened, so that compression or even destruction of the optic nerve with atrophy and blindness may result, or the optic neuritis may result from the toxin originating in the infected sinus.

Should the pressure involve the sphenoid fissure, which leads from the cranial cavity into the orbit, the oculomotor nerves—the third, fourth and sixth,—the ophthalmic division of the fifth, some filaments from the cavernous plexus of the sympathetic, the orbital branch of the middle meningeal, the recurrent branch of the lachrymal arteries and the ophthalmic vein would be affected. The differential diagnosis of paralysis in the ocular muscles belongs to the field of ophthalmology, though it is evident that certain restricted movements of the eye would arise.

Passing from the sphenoid sinus with its numerous complications, we come to the largest of the accessory cavities, the antrum. The antrum is frequently diseased, and its roof, which is thin, forms the floor of the orbit and contains the infraorbital canal. Its floor is often pierced by one or more teeth. Of these, the three molars, the premolar, and the canine, are the offending ones. Its ostium opens into the middle meatus, so that it may become infected by either of these routes.

From these few scattering anatomical points we may readily understand the importance of an early diagnosis in these conditions, but we must not lose sight of the fact that the classical symptoms as laid down in text-books may not all be present, and, when present, are usually indicative of a well-advanced case. In the first stage of sinusitis, there is a congestion and thickening of the mucous membrane and a narrowing of the natural outlet, with an increase and retention of the mucus secretions within the sinus. This may or may not give rise to the subjective symptom of pain. The only objective symptoms are those observed on examining the nose, when we may find some form of obstruction, and afford relief by the application of adrenalin or cocain solution. In the second stage, pressure may greatly distend the cavity, so that the orbital space is encroached upon and ocular symptoms make their appearance. Great pain, or headache, with tenderness on pressure over the involved sinus, conjunctival injection, blurring of vision, and the expression of suffering are then evident. Nasal examination again comes to our aid, and we find an inflamed, swollen middle turbinate and possibly some discharge in the middle meatus or olfactory fissure. The application of cocain or adrenalin to the middle turbinate may again give considerable relief, and be followed by marked drainage, or the condition may continue and pass into the third stage. This is the stage of suppuration, and the process is no longer confined to the sinus. Orbital abscess with all its dangers may ensue, or extension upward and backward into the brain cavity may result in a fatal meningitis. Necrosis of the bone and the formation of fistulae may be expected. The ocular symptoms which may exist in disease of any of the sinuses have already been enumerated. The individual sinuses are usually distinguished by the following methods, as shown by the cases which I have selected from my case histories.

Case 1. Patient came in complaining of frequent attacks of headache on the right side, depression, weakness of mental powers, and inability to fix her attention. There was previous history of nasal discharge from the right side, but none at present. She had lost all

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desire for social affairs and only wanted to be left alone.

Nasal examination revealed a deviated septum to right, pressing against an inflamed middle turbinate. No pus was present in either the middle meatus or olfactory fissure.

Four per cent cocain solution was applied to the middle turbinate, and patient carried to the dark room for transillumination, which was negative for both frontal sinus and antrum. Escat's position was negative for pus. The nostrils were next irrigated with saline solution for cleansing purposes and the right antrum punctured. Irrigation of the antrum showed a small amount of pus. The nostril was again irrigated to remove any secretion that might be retained. This was followed by irrigation of the frontal sinus and anterior ethmoid, with negative results.

Diagnosis: Closed empyema of the right antrum.

Results: Irrigation negative after six weeks.

Case 2. Patient complained of dull aching pain in left cheek bone, which was at times slightly tender on pressure. There was considerable discharge from the left nostril. When the discharge increased, he experienced some relief from the pain.

Nasal examination revealed pus in the middle meatus and floor of left side. Middle and inferior turbinates were fiery red and swollen. Transillumination showed crescent shadow under lower eye-lid and over malar region. The usual procedures were carried out and the frontal excluded. Considerable pus was obtained from antrum.

Diagnosis: Open empyema of left antrum.

Case 3. Patient complained of frequent headache, which became almost constant at menstrual periods. The pain usually began in the supraorbital region on the right side, but there was no tenderness except at menstrual period. There was constant nasal discharge from the right side. Nasal examination revealed polypi in the middle meatus, attached to the middle turbinate. There was slight septal deviation to the right in region of middle turbinate with a spur in the lower anterior portion. No pus was seen.

Transillumination gave dark shadow over right antrum with absence of pupillary reflex. Both frontal sinuses showed dark but the right one was a little more dark.

Probable Diagnosis: Empyema of right antrum, frontal and ethmoid.

Anterior third of middle turbinate and polypi were removed, followed by discharge of offensive pus in the middle meatus. A few days later the antrum was irrigated and odorless pus washed out. The frontal sinus was then irrigated and offensive pus obtained. Third washing of antrum was negative, but pus continued in the frontal washings for two weeks.

Diagnosis: Empyema of right frontal sinus, with over-flow into antrum.

Case 4. Patient complained of intense headache of the vertex and occiput, with sudden blindness in the right eye. There was marked mental depression with inability to fix her attention. Considerable dizziness and nausea was complained of, but no vomiting. There was a marked subjective sense of odor.

Nasal examination showed pus and crust in the olfactory fissure, middle meatus and floor of right side, with yellow crust in the postnasal space. Unable to locate sphenoid ostiun, and probing was negative. Transillumination of frontal and antrum negative. No X-ray was made, but would have been of some help.

After irrigating the nose, the middle meatus was negative, but pus appeared in the olfactory fissure.

The entire middle turbinate was removed and the ostium of the sphenoid could be seen discharging pus. The anterior wall of the sphenoid was then removed and the cavity gently curetted, removing a considerable quantity of pus and granulations. No pus could be seen coming from the posterior ethmoids.

Diagnosis: Closed empyema of the right sphenoid.

Case 5. Patient sent to me with diagnosis of empyema of right antrum of dental origin. The first bicuspid and first molar had been removed and opened into the antrum; through these openings the antrum had been washed for about three months.

Nasal puncture and irrigation was done and the dental cavity closed by flap. This failed to hold. and a second and third flap were made, with the same result. Nasal irrigation was continued for several months with no apparent improvement. Frontal irrigation was not successful. A radical operation of he Caldwell-Luc modification was performed, with good results so far as the antrum was concerned, but pain in the frontal region con-

tinued and became rather severe. Pus continued in the middle meatus. There was a septal deviation to the right, which crowded the middle turbinate. Four weeks after the radical operation, I removed the anterior third of the middle turbinate. The frontal sinus was irrigated every day for two weeks, when it showed clear. Pain in the frontal region and behind the eye continued. X-ray of the posterior ethmoid showed cloudy on right side. Pus could be seen in the olfactory fissure every now and then. It was decided to operate for complete removal of the middle turbinate, and this will be done within the next few days.

Diagnosis: Empyema of the right antrum of dental origin, with secondary involvement of the frontal and ethmoid cells. The diagnosis of posterior ethmoid involvement was tentative. Diagnosis of disease of the individual sinuses can only be positive when the others are excluded by irrigation. This is the most important and only infallible diagnostic aid at our disposal.

I have seen numerous positive cases where most of the other findings were negative, and have seen negative cases where many of the other findings were positive. Transillumination and X-ray are often very helpful, but too much importance should not be attached to them unless other indications justify our suspicions. Pus in the middle meatus points to the frontal, anterior ethmoid, and antrum, while pus in the olfactory fissure is indicative of posterior ethmoid or sphenoid disease, but we should not be satisfied with our diagnosis until the individual sinuses have been irrigated and a positive or negative result obtained.

COMPLICATIONS INCIDENT TO THE OPERATIVE TREATMENT OF INFLAMMATORY DISEASES OF THE GALL-BLADDER.

By AIME PAUL HEINECK, M. D., Chicago, Ill.
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During the last ten years, great advances have been made in the diagnosis and operative treatment of diseases of the gall-bladder and bile-ducts. Further improvement evidently is possible in diagnostic precision, timeliness and completeness of operative relief and obviation of recurrences. The unflagging inculcation of established facts and the combined efforts of internists, surgeons and laboratory workers have given us a more detailed understanding of the etiology, symptomatology, anatomical evolution and therapeutic indications of the various pathological processes of the biliary tract. Cholecystitis, acute and chronic, and its manifold complications call for operative relief. In the early stages of the disease, surgical therapy judiciously applied, will cure 66 per cent and improve 34 per cent of the cases which survive the procedure.[8] The study of the pathological processes of the upper right abdominal quadrant and of the operative procedures most suitable to this region has received a marked impetus from the beneficent results attending early operations. In inflammatory diseases of the gall-bladder and biliary passages, medicinal measures are almost always purely palliative; they are not curative. Dietetic, hygienic, physio-therapeutic and medicinal measures should precede, accompany and supplement the operative treatment of cholecystitis and its complications. To this dictum, there should be no exceptions.

Gall-stones, irrespective of size, number, nature and location, lodged or impacted in the gall-bladder, in the cystic, hepatic or common duct, or in a diverticulum, call for early operative removal. All collections of pus within the gall-bladder, bile tracts or in juxta-position to the biliary system, call for early operative evacuation.

For the relief of cholecystitis, cholelithiasis, obstruction of the cystic duct, pericholecystic adhesions, etc., two operations, cholecystostomy and cholecystectomy, are generally performed. These two operations, judged by the results obtained, possess merits and have their respective indications,[5] limitations, difficulties of performance, operative and post-operative accidents, morbidity and mortality.

Greater precision in diagnosis, early and timely operations, better operative technic and judicious pre- and post-operative management of gall-bladder diseases have extended the indications of cholecystectomy, lessened its operative difficulties, improved its immediate and remote results and contributed to its more frequent performance. The mortality attending timely gall-bladder operations, properly performed, is, at the present time, almost negligible. "During the eleven months from November 1, 1915 to October 1, 1916, we performed 776 cholecystectomies with a mortality of 1.77 per cent."[1] "The mortality following cholecystectomy in the treatment of cholecystitis

with or without stones is low, only 1.8 per cent in 2,460 operations performed during the period of three years."[2] "Forty-five cholecystectomies were performed for acute cholecystitis, with no deaths, and twenty-two cholecystostomies, with one death. There were eleven deaths in 890 cholecystectomies for chronic inflammation of the gall-bladder."[3] We feel confident that additional improvement is feasible. The best time to operate for the cure of gall-bladder and bile-duct disease is before the advent of irreparable anatomical changes. At this stage, the mortality should be less than 1 per cent[6] and complete recovery the rule. Cholangitis, choledochitis and common duct stone are late and serious complications, difficult of operative relief and sometimes fatal.

In this article we discuss the following operative and post-operative complications incident to surgery of the biliary tract:

(a) Incomplete disappearance of symptoms and recurrences;

(b) Post-operative adhesions;

(c) Operative and post-operative hemorrhage;

(d) Post-operative external fistulae (operative bile-duct injuries);

(e) Post-operative biliary peritonitis.

Incomplete Disappearance of Symptoms and Recurrences

In acute or chronic cholecystitis, primary or secondary, calculous or non-calculous, early or late, isolated or associated, the paramount indications are to arrest infection, remove inflammatory products, correct existing anatomical changes, restore liver function to normal, nullify the effects of disease sequelae and prevent the return of inflammatory disturbances. The avoidance of post-operative distress in all cases is more than one can reasonably expect.

By instituting operative relief at the onset of the disease, when the inflammatory process is still limited to the gall-bladder or before it has seriously involved, damaged or crippled any contiguous organ, one is far more likely to secure a complete and permanent disappearance of symptoms. The ideal time to operate is while the condition, local and general, of the patient is good. Early operation is easy of execution and forestalls complications; delay invites disaster. Delay permits the development of dangerous local and regional complications, viz., cholangitis, perforation, pancreatitis, common duct obstruction, etc., and may induce remote disturbances (vascular, cardiac and arthritic). The chief avoidable technical causes of incomplete cure are: Defective or improper technic; undue operative trauma; lack of thoroughness in the digital and instrumental exploration of the bile-ducts. In most instances, common-duct stones can be detected by introducing the finger into the foramen of Winslow and milking the choledochus between the fingers. No doubt, some recurrences are due to a calculus or calculi overlooked at the previous operation.

Diseases of the right hypochondriac and epigastric regions are insidious in development, are frequently unrecognized, not uncommonly misdiagnosed and often come to the operating table too late to be completely and permanently relieved. Tardiness of operative treatment is the main cause of incomplete cures and of recurring symptoms. The cases with advanced pathology are those that present a stormy post-operative course.

The increased popularity of cholecystectomy (84 per cent of patients after cholecystectomy are free from all symptoms[4]) is due to the fact that cholecystostomy often gives only incomplete and temporary relief. A successful cholecystectomy, followed by appropriate medical treatment, cures disturbances directly dependent on disease processes limited to the gall-bladder, prevents the extension of inflammation from this organ to contiguous organs and exerts a beneficent influence on local and regional inflammations due to or maintained by it: Hepatitis, pancreatitis, duodenal ulceration, etc. A retained diseased gall-bladder is a frequent cause of ill-health and a potential source of future trouble. It is a decided factor in the recurrence of gall-stones, of infective inflammation and in the persistence of local and regional symptoms, such as pain, indigestion, etc. Obstructive jaundice, either intermittent or chronic, developing after cholecystostomy is due to a stone or stones overlooked or reformed in the gall-bladder, lodging in the common bile-duct, to stricture or kinking of the choledochus, to fibrosis and traction of an adherent contracted gall-bladder, etc.

Deaver[7] states that 65 per cent of his recurrences could have been prevented by removal of the gall-bladder. Cholecystectomy often gives brilliant immediate results and eliminates the annoyance and discomfort incident to prolonged post-operative drainage. After cholecystostomy, the persisting symptoms are due

to residual pathology; after cholecystectomy, they are mainly of mechanical origin and often result from operative trauma. Careful examination of the cystic, hepatic and common ducts and the systematic removal of any duct obstruction, calculous or inflammatory, secures better results. The removal of all foci of infection, proximal or distal to the hepatic system (tonsillar, dental, duodenal, appendiceal, colonic, etc.), is essential to perfect health. Appendectomy is nowadays almost a routine procedure when operating on the biliary tract.

The physiology of the biliary system is intricate and our knowledge of the functions of the gall-bladder is as yet incomplete and indefinite. Therefore, the gall-bladder should never be removed in the absence of positive indications or if it be highly probable or evident that "it can come back." Though the human body, owing to its great power of adaptation, compensates for the loss (by disease or by removal) of the gall-bladder, the needless sacrifice of this organ is a mutilation and can lead to invalidism; it may prove fatal.

In a large number of cases recovery is gradual. In others, even in the hands of the most experienced and irrespective of the type of operation performed, permanent and complete relief is not obtained. The persistence and recurrence of symptoms are due to the patient's nervous instability, the existence of long-standing and advanced pathological changes not admitting of operative correction or removal, such as hepatitis, pancreatitis, etc., adhesions, operative injuries, inadequate pre- and post-operative treatment and metabolic disturbances. "Pancreatitis associated with or secondary to cholelithiasis has recurred after cholecystectomy and led to pancreatic cyst-formation."[9] A thorough knowledge of the technic and the respective indications and limitations of cholecystostomy and cholecystectomy will enable the operator to remove and to obviate most of the frequent causes of incomplete relief, such as impaired motility, elasticity and contractility of the gall-bladder, strictures or kinks of the cystic duct, adhesions of the pylorus, transverse colon or omentum to the gall-bladder or liver, duct obstruction, etc.

Post-Operative Adhesions

After gall-bladder and bile-duct operations, patients often complain of symptoms referable to adhesions existing between the gall-bladder and neighboring viscera. The operator must aim to minimize as much as possible the formation of peritoneal adhesions. In 3,000 abdominal operations, symptoms manifestly due to post-operative adhesions were present in from 10 to 12 per cent of cases; in 3½ per cent of these, operative relief was necessary (Payr).[11] It is important to differentiate between the pain, tenderness, mechanical interterference and other symptoms caused by adhesions of operative and post-operative origin and the neuro-psychogenic symptoms of post-operative neuroses, between adhesions, inflammatory in nature, and congenital peritoneal folds. Post-operative peritoneal adhesions, irrespective of nature or location, are due to such factors as: Infection, intraperitoneal hemorrhage, mechanical and chemical injury of the serosa, denudation of peritoneal surfaces, foreign bodies, such as gauze-drains, drainage tubes, etc.

Post-operative cholecystic and pericholecystic adhesions may follow simple as well as difficult operations. They are occasionally symptomless. Usually, they are provocative of persisting discomfort, permanent dysfunction and chronic obstructive disturbances. Patients with many pericholecystic adhesions can seldom be made entirely free from symptoms. Adhesions, by kinking or compressing the cystic or common duct, impede the flow of bile; biliary colicky pains and other distressing symptoms may result. When adhesions angulate or drag on the pylorus and duodenum, gas distress, gastric distention, spasm, vomiting and other digestive disturbances are likely to follow. Omento-cholecystic adhesions exerting traction on the greater curvature provoke painful gastric peristalsis.[10] The fixation by scar tissue of the pyloric end of the stomach or of the hepatic flexure of the colon to the liver is a not infrequent cause of gastric disturbances.

Innumerable methods and substances—liquid vaseline, sterilized olive oil, normal salt solution and non-absorbable membranes, such as rubber dam, collodion, oiled silk, etc.—have been recommended to limit, or to prevent the formation of peritoneal adhesions. They have all been found wanting. In the present stage of our knowledge, surgeons are not justified in using any of these agents in the peritoneal cavity. The absolute prevention of peritoneal adhesions is as yet an unsolved problem.

Adhesions are a frequent cause of incomplete relief, of failure to cure, of recurring in-

XUM

flammatory and obstructive disturbances, and all factors leading to adhesion formation are to be studiously eliminated. Adhesions being infectious, inflammatory and traumatic in origin, their incidence as to frequency and extent can be minimized by the practice of strict asepsis, the observance of great gentleness in all operative manipulations, the infliction of minimal damage to the tissues and the adoption of the technic most appropriate to the case at hand. We will also avoid such contributory causes as the use of chemical irritants, needless handling and exploring of organs, the undue exposure of the serosa to the air. We will endeavor to reduce intraperitoneal hemorrhage to a minimum, to limit, as to duration and amount, gauze or tubular drainage to the bare desideratum, and to cover with peritoneum all denuded surfaces. It is needless to say that the surgeon should operate with the greatest speed consistent with the patient's safety and thoroughness of execution. Chemicals, tincture of iodine, Dakin's solution, etc., cause the formation of adhesions by destroying the frail endothelium of the peritoneal surface. To inhibit the prolonged contact of denuded peritoneal surfaces, some advise the stimulation of peristalsis by purgation; others recommend that the patient's position be frequently changed.

Timely removal of gall-bladders presenting pathological changes minimizes the incidence, often prevents and suppresses cholecystic adhesions. It gives access to pericholecystic adhesions and may enable the operator to remove or forestall their sequelae. Nevertheless, the indiscriminate removal of the gall-bladder is unsurgical, dangerous, and is to be condemned. Cholecystostomy, with its associated prolonged drainage and possible escape of bile into the wound, leads to the formation of adhesions. Early removal of drains, gauze or tubal, is desirable. Bile-soaked drains excite the production of dense adhesions.

The removal of shrunken, atrophied, contracted gall-bladders or of those embedded in adhesions is difficult and leaves a raw surface which should, if feasible, be covered with an omental graft or by peritoneum. As much as possible, cover with peritoneum the fissure in the liver left by the removal of the gall-bladder and all other denuded areas, and thereby obviate to a very large extent the occurrence of troublesome adhesions. One or two fine catgut stitches joining the lesser omentum to the mesocolon, or fastening the great omentum into the hepatoduodenal angle, walls off dangerous raw surfaces and may insure against the attachment of adhesions to the more sensitive pylorus or duodenum. Dr. C. H. Mayo says we should avoid annoying and permanent disturbances "by forming your own adhesions," by bringing up and placing the great omentum between the liver and the contiguous denuded areas.

In cholecystostomy, the drainage-tube having been brought through the abdominal wall, preferably through a stab wound, the gall-bladder is dropped back to its normal position; thereby a source of post-operative discomfort is avoided. The anchoring of the gall-bladder to the abdominal wall is undesirable, unphysiological and not infrequently causes permanent distress. The recurring attacks of pain and tenderness and the dragging sensation in the region of the scar are often relieved by fomentations and massage.

In dealing with adhesions in the bile-duct region, the surgeon should be exceedingly circumspect in order not to injure the important structures that are present in this region. The gall-bladder may be so bound down by inflammatory adhesions as to make its removal inadvisable. It has been known to cap a perforated duodenal ulcer. A duodenal fistula[12] has been known to follow the separation of a gall-bladder adherent to the gut.

Operative and Post-Operative Hemorrhage

Operative and post-operative hemorrhage attending operations on the biliary system is an alarming complication and may prove most troublesome and difficult to control; it may end fatally.

In the absence of jaundice, hemostasis is effected by the methods ordinarily employed to arrest hemorrhage in other abdominal operations. In a non-jaundiced patient, hemorrhage, operative or post-operative, is usually easily checked if the operator be conversant with its various causes. What are these causes? Overlooked and non-ligated bleeding points, insecurely tied ligatures, premature absorption of ligature material, accidental tearing or section of normal or anomalous vessels not infrequently embedded in inflammatory tissue, and oozing resulting from the tearing of adhesions and the dissecting of the gall-bladder from its hepatic bed. It is essential that the operator secure an exposure of the operative field ample to enable him to identify the important structures present in this region. A suitable operat-

ing table, tilting or rotating, if possible, of the liver, wide retraction of the wound-edges and walling off of the intestines by gauze pads, all aid in securing a clearer view of and an easier access to the operative region. The incision should be adequate in length; it must permit the proper examination of the bile-ducts and the accompanying vessels. It is all-important that the operator be well versed in the topographical anatomy of the biliary region;[13] especially, should he be well acquainted with the normal and anomalous distribution of its blood vessels and the variations in the mode of union of the bile-ducts. Whenever feasible, excision should begin at the cystic end of the gall-bladder, proceeding from below upward and in the direction opposite to the lymph-field is less obscured by blood and perfect hemostasis more easily secured. The cystic artery lies above and behind and not along the side of the cystic duct and presents variations in number, origin, size, length, tortuosity and anatomical relations. A single cystic artery is present in 88 per cent of individuals; in 12 per cent, there are two cystic arteries. The bile-ducts are covered by plexuses of blood and lymphatic vessels.[14] If these be cut, troublesome hemorrhage may follow. If possible, isolate and ligate the cystic artery before it divides into its two branches and let it drop back away from the surface of the liver. In clamping the cystic artery, seize only the artery and its surrounding connective tissue. Should the knot or the forceps slip from or be pulled off the cystic artery, or should this same vessel or an important branch thereof be accidentally torn or cut before being grasped, profuse bleeding will occur. The indication is to immediately catch the bleeding point without injuring the bile-ducts. Compress the bleeding point with the forefinger and catch with a few mouse-toothed forceps the tissues about the forefinger. Then lift the forceps, remove the finger and clamp the artery. After all the bleeding points have been securely ligated and the hepatic oozing fairly well controlled by peritonization, gauze-tampons, etc., the operative wound is closed. Bleeding points in the abdominal wall are located, clamped and ligated without difficulty.

Post-operative bleeding from the cystic artery is to be recognized and controlled at once; if not checked, death may result from intraperitoneal hemorrhage. When drainage has been used, blood appears on the dressings and is detected early; in the absence of drainage, it escapes into the peritoneal cavity and is only revealed by the symptoms of acute anemia. This argument is used by the opponents of cholecystectomy without drainage. Drainage provides an outlet for extravasated blood, escaped bile and inflammatory exudates.

Oozing hemorrhage is more frequent and more dangerous after cholecystectomy than after other laparotomies. The oozing comes mainly from the bed of the gall-bladder; it often is copious and very difficult to arrest. When removing the gall-bladder, incise its peritoneal coat in such a manner as to form two flaps of serosa. Use these to peritonize the denuded gall-bladder bed; if necessary, fix an omental graft to the raw liver surface. The cellular tissue between the gall-bladder and the liver is at times very vascular. In removing the gall-bladder from its bed, minimize hemorrhage by sharp dissection of this tissue and the least amount of trauma to the liver. The oozing of blood may be checked by the pressure of pads soaked in hot salt solution. If the denuded area be extensive and the oozing difficult to control, a gauze-pad is spread over the denuded hepatic area and extends from the stump of the cystic duct well beyond the liver. This is done to stop oozing and serve as a drain. In many cases a cigarette drain suffices. After cholecystostomy and cholecystectomy, the gauze packing is to be cautiously removed lest oozing recur from the gall-bladder bed and other denuded areas.

In the presence of severe obstructive jaundice, owing to the fact that the coagulation time of the blood is increased from three or four minutes to ten or twelve minutes or even longer, operations on the biliary tract are extra hazardous. Icteric patients, owing to their low general resistance and great liability to serious and, at times, fatal hemorrhage, should not be subjected to operations that are not immediately and absolutely necessary. The cholemic patient's great liability to hemorrhage must be foreseen; it necessitates appropriate and adequate pre- and post-operative care. Though cholecystectomy is incontestably the better operation as to the rapidity and completeness of cure, nevertheless, in cases of deep jaundice, it is better to do the minimal amount of operating and, therefore, to perform the lesser operation. Excision of the gall-bladder, if associated with much injury to the liver, may be followed by serious oozing from the

XUM

denuded liver surface. Cholecystostomy permits the slow decompressing of the liver by drainage through the gall-bladder; later, after the jaundice has subsided, the hepatic function has improved and the patient's resistance increased, the other therapeutic indications may be met.[17] When indicated operations can be safely postponed in jaundiced patients, they should be adjourned. "If the jaundice is just beginning to show at the time the patient presents himself for treatment, it may be best to operate without delay, but if he comes when the jaundice is decreasing, it is best to wait until it has disappeared or is at a standstill."[15] Operation should not be too-long delayed, as prolonged obstructive jaundice is a factor in the causation of biliary cirrhosis.

Before operating on cholemic patients, the coagulation time of the blood and its urea content are to be brought to approximately normal. It is also desirable that there be a normal total urinary output and an absence of albumin and casts. The existing hepato-renal insufficiency must be treated. Very frequently, one must operate in the absence of ideal conditions.

Horse-serum, defibrinated blood, etc., administered subcutaneously, decrease the clotting time of the blood. All our jaundiced patients, receive calcium lactate per mouth for several days before and after the operation. According to Lea and Vincent, the clotting time of blood is lowered by doses of calcium lactate taken by mouth each day for three days. In all cases of obstructive jaundice, our patients receive for three days preceding the operation a daily intravenous injection of 5 to 10 c.c. of a 10 per cent solution of calcium chloride in re-distilled water. Walters says that a 5 c.c. of a 10 per cent solution of calcium chloride in re-distilled water, if given intravenously for three days immediately prior to operation, brings the clotting time within normal limits despite a most intense jaundice. Blood transfusions (whole blood is preferable),[16] before and after operation, are useful in emaciated, depressed, jaundiced patients, often enabling them to successfully undergo the ordeal of a serious surgical operation. Blood transfusions, though valuable, do not have in obstructive jaundice the specific effect that they have in hemorrhage of the new-born. By applying, both before and after operation, dry and moist heat to the hepatic region, the activity of the hepatic cells is increased. The general condition of jaundiced patients can be much improved by the ingestion of large amounts of water per mouth, of normal salt solution subcutaneously and of glucose and sodium bicarbonate solutions rectally. The patient's carbohydrate balance should also be re-enforced.

Post-Operative External Fistulae

All, intermittent or chronic, post-operative external fistulae of the biliary tract should be treated operatively if they be attended with discomfort and health impairment and do not show any tendency to spontaneous closure. According to the nature of discharge, they are classified into mucous and biliary; according to the site of origin or internal orifice, into gall-bladder, cystic, hepatic and common duct fistulae. Persisting sinuses, due to careless technic, lost sponge, forgotten drain, etc., must be distinguished from fistulae.

External Mucous Fistulae.—Cholecystostomy intentionally creates a biliary fistula. In the absence of obstruction or stenosis of either the cystic or common bile-duct, such operatively-created fistulae heal spontaneously after a shorter or longer period. If the cystic duct be completely obstructed, the fistula becomes mucous in type and closes and opens intermittently until the cause has been operatively removed. Spontaneous permanent closure rarely occurs in mucous fistulae resulting from:

(a) Impaction of a calculus at the junction of the gall-bladder and cystic duct;

(b) Stenosis of the cystic duct following calculous or other traumatic ulceration;

(c) Compression of this same duct by cicatricial tissue, traumatic or inflammatory in origin.

The requisites for spontaneous healing are obliteration of the cavity of the gall-bladder and conversion of the organ into a fibrous cord or mass.

The removal of the entire gall-bladder is, in the absence of any common duct obstruction, the best treatment for a mucous fistula. The cause, origin and source of the fistula and the fistula itself are suppressed by cholecystectomy. In acute and chronic cholecystitis, when stenosis of the cystic duct due to traumatic ulceration is present, the ablation of the gall-bladder prevents the development of mucous fistulae. If the cystic duct and the gall-bladder show but slight alteration, it may suffice to remove the impacted stone. As a rule, this calculus is not of new formation; it was pres-

ent and overlooked at the time of the first operation. If the common duct be the seat of irremovable obstruction (partial or complete), the cystic duct and the gall-bladder are cleared of their contents and a cholecyst-enterostomy is performed. Of the three procedures just mentioned, ablation of the organ is the operation of election for the cure of mucous fistulae of the gall-bladder. Entero-cholecystic anastomosis is difficult of execution; it is a measure of last resort.

External Biliary Fistulae.—A safe and successful cholecystectomy necessitates an adequate exposure of the operative field and a careful exploration of the bile-ducts. If, at the time of the excision of the gall-bladder, calculi present in the common duct are overlooked, a biliary fistula not uncommonly results. Biliary nstulae due to calculous occlusion of the common bile-duct, if the duct be otherwise normal or almost normal, close upon removal of the occluding calculus or calculi. Biliary fistulae due to compression of the common duct by cicatricial tissue are cured by the removal of the compressing agent. An operator, unskilled and inexperienced in biliary surgery and possessing only a superficial knowledge of the many anatomical variations in the mode of union, length and course of the bile-ducts, is very liable to ligate, crush, cut or resect the hepatic or common duct. An incision ample in length permits identification and palpation of the ducts and minimizes their liability to injury. The cystic duct must be seen when ligated. The operator must see that he is tying it and nothing else. The vast majority of duct injuries are due to errors in technic or forgetfulness of the anomalies of this region. Bile-duct injuries are of more frequent occurrence if the topography of the biliary region is altered and distorted by adhesions.

In removing the gall-bladder, ligate and divide the cystic duct close to the choledochus and be careful not to traumatize the latter. In difficult cases, it is better to leave a stump of the cystic duct than to run the risk of injuring the common duct. Dilatation of the stump of the cystic duct is uncommon and most always of negligible clinical significance. Some biliary fistulae have followed too low ligation of the cystic duct. Incisions giving inadequate exposure of the operative field are responsible, in part, for injuries to the bile-ducts. "Working in the dark" begets poorer results and a higher percentage of complications. Under the most favorable conditions, the operative field is a limited one and important structures lie in such close proximity that accidents are not uncommon. Duct injuries are less common since retrograde cholecystectomy has come into more general use.

All bile-duct injuries should be repaired immediately, that is, at the time of infliction; if overlooked or improperly repaired, a biliary fistula or a biliary peritonitis follows. Spontaneous cure of serious bile-duct injuries is so infrequent that its occurrence, for practical purposes, can be disregarded.

The indications for operation are determined by the patient's general condition, the age of the fistula, the amount of discharge and the probability or non-probability of spontaneous permanent closure. The normal flow of bile into the intestines must be re-established; there must be a permanent passage-way for the bile from liver to intestines. Permanent biliary fistulae that discharge profusely entail loss of appetite, emaciation and, in time, death. Reconstructive bile-duct operations are failures when the line of suture yields or when a secondary stenosis or an ascending angiocholitis develops. In irreparable common duct injuries, the anastomosis of the gall-bladder to the stomach, duodenum, jejunum or colon is indicated. This indication cannot be met if the gall-bladder has previously been removed or if it be the seat of degenerative changes unfitting it for anastomosis. The anastomosis to the colon is a measure of necessity, performed only if the patient's condition be precarious or when the anatomical conditions present do not permit prolonged operative maneuvers. The saving of the bile to the organism improves digestion and avoids malnutrition. The physico-chemical functions of the bile are of value in intestinal digestion.

Slight parietal injuries of the hepatic or common duct are to be sutured. Complete or almost complete division of either of these conduits may be secured by circular suture of the divided ends with or without mechanical aids, such as a rubber-tube, glass-tube, etc., allowed to merge through a separate opening in the duodenum. The line of union is to be reinforced with omentum. In complete bile-duct division, it is difficult to find the proximal and, especially, the distal end, and it is still more difficult to successfully suture the ends to one another. Reconstruction of the bile passages is always a formidable procedure, even to the

XUM

most expert technician. The extent, location and nature of the duct injury, the associated pathology (dense, firm adhesions not easily separated, etc.) and the patient's general condition must all be considered so as to choose the operative technic most appropriate for the case at hand. When, owing to the length of the damaged area, the two ends of the duct cannot be apposed, the defect is to be bridged by inserting one end of the rubber-tube in the upper segment and then passing the other end through the lower segment into the duodenum; omentum or other tissue is sewed over the exposed portion of tube and reconstructed duct.[19] New canals built by the aid of inverted veins, fascial, omental or other tissue do not give lasting satisfactory results. These newly created ducts, not being mucous-lined and not being provided with a submucosa, invariably contract. If the distal end of the divided duct cannot be found or if it be unfit (too short, too friable, etc.) for end-to-end suturing, hepatico-duodenostomy,[18] the implantation of the proximal end of the hepatic duct into the duodenum and hepatico-gastrostomy, implantation of the proximal end of the hepatic duct into the stomach, are practiced. Both of these operations can be done upon a rubber-tube and direct suture.

Post-Operative Biliary Peritonitis

Circumscribed or diffuse post-operative biliary peritonitis is due, partly or wholly, to the escape of bile into the peritoneal cavity. When generalized, it is a serious complication. It follows the soiling during the operation of the operative field with gall-bladder and bile-duct contents or the leakage after the operation of bile into the peritoneal cavity. The site of leakage may be an oozing liver surface (gall-bladder bed), damaged or cut normal or anomalous bile-ducts, an improperly or insecurely ligated cystic duct whose ligatures have slipped, been torn off or absorbed prematurely. If the cystic duct be divided and ligated too close to the choledochus, the bile pressure may force off the ligatures; bile than escapes into the peritoneal cavity and biliary peritonitis results.

The prophylactic treatment of biliary peritonitis consists in the careful avoidance and successful removal of its etiological factors. By the aid of abdominal pads, the operative field is carefully walled off from the general peritoneal cavity, thus minimizing, at times preventing, the contamination of the latter by the escape of infected or non-infected bile. Before closing the operative wound, see that the cystic duct is securely tied by two ligatures and that all bile-duct injuries are rapaired. Fatalities due to overlooked duct injuries are not uncommon.

General peritonitis is always a possibility when drainage is omitted. For several days after cholecystectomy, oozing of serum, blood or bile occurs from the gall-bladder bed. Drainage prevents the accumulation of effusion in the peritoneal cavity and provides for the esecape of exudates. In practically all difficult operations on the biliary tract, I drain the subhepatic space and the renal wall. After empyema, rupture of the gall-bladder and, in cases in which hemostasis is not perfect, drainage for a few days is imperative. Healing is not unfavorably influenced by drainage and undesirable sequelae to be feared. Leakage is more frequent when the gall-bladder is removed from above downwards.[20] Walker states, "this is a further argument for careful isolation and ligature of the cystic duct and the removal of the gall-bladder from below." In many cases, it suffices to place a soft rubber tube or cigarette drain along the gall-bladder bed and to make it project through a stab wound in the loin or through a stab incision an inch or two to the right of the operative wound which is then closed. Experience has taught us that a stiff tube may cause much distress and a soft rubber one, actual danger through kinking and blockage.

The prophylaxis of biliary peritonitis is all important. This is due to the fact that the treatment of this affection, like that of other forms of acute peritonitis, is very unsatisfactory. The indications are to evacuate all bile collections, to check the further escape of bile into the peritoneal cavity and to accelerate the elimination of bile-salts from the circulation. To arrest the escape of bile, it is necessary to expose and repair the injured bile-duct and to drain the biliary region. Hypodermoclysis and proctoclysis are employed to combat the existing toxemia. These patients are very sick and unable to withstand any lengthy and complicated operative maneuvers. Symptoms are met as they arise by the usual measures.

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4455 *Greenwood Avenue.*

Correspondence

An Appeal to Physicians.

Richmond, Va.,
November 15, 1926.

To the Editor:

Within recent years everything in the Navy, except the health of the men behind our guns, has been investigated, published, and millions appropriated for improvement, and the only publicity incident to the country boy who volunteers to protect the Stars and Stripes has been the proverbial country-wide posters to obtain recruits. In the meantime, the records which repose in the archives will bear me out, that the Nation's selected youths are not only being pensioned for life, but deserting while on the sick list, and are dying of preventable diseases.

Our statistics from 1920-25, inclusive: 617,832 patients on the sick list; 12,604,225 days lost from duty; 33,140 invalided back to civil life; 4,839 died, either of disease or injury: 728 officers placed on the retired list, not due to age, but disease, 204 of whom were for tuberculosis; 1,540 enlisted men deserted while on the sick list. I estimate that the cost of medical supplies and maintenance of the sick costs upward of $35,000,000. The officers on the active list possess 7,295 physical disabilities, among them being blood pressure, defective vision, heart disease, rupture, etc.

The loss of only fourteen souls on the Shenandoah shocked the Nation, yet these staggering figures seem to give little concern. Pensions account of preventable disease is as much a burden relatively as the veteran disabled by shot and shell.

Sick sailors and crippled officers cannot defend the flag. Shall we close the door after the battleship has been sunk? The place for our marines is behind the guns, not on the sick list. To spend millions in air craft, and in the meantime, to witness the Nation's defenders walking the deck, suffering from earache and abscessed teeth, due to lack of specialists, is inconsistent. Desertions represent the wrong kind of initiative.

The fault rests with the system,—military rank in the sick chamber, lack of freedom of speech and publicity, accepting recent graduates in medicine, engaged in matters which could be executed by business men. The gap between the officer and the man in the ranks is too wide. I have made a survey halfway around the world, stating the reasons and remedies in two books which I ask you to assist me in getting before Congress. If the members of Congress who are physicians, would form a Health Committee, millions in money and human life could be saved. I hope that you will esteem it a privilege to write your congressman about this worthy cause, in the interests of humanity, economy, and the Nation's security.

W. Armistead Gills, M. D.,
U. S. Navy (Retired).

XUM

Womans Auxiliary Medical Society of Virginia

Report of Annual Meeting.

The Woman's Auxiliary to the Medical Society of Virginia was called to order by the President, Mrs. Southgate Leigh, on October 13th, at 11:00 o'clock, A. M., in the Tea Room of the Monticello Hotel.

The meeting was opened with an Invocation by Mrs. L. W. Scott.

Mrs. R. L. Payne, Sr., of Norfolk, gave a hearty welcome to the visitors, responded to most graciously by Mrs. T. J. Hughes, of Roanoke, Va.

The principal speaker of this occasion was Dr. Olin West, of Chicago, Secretary and General Manager of the American Medical Association. The Auxiliary was most fortunate in having Dr. West present and he gave a very interesting talk on "How the Auxiliary Can Best Serve The Medical Profession." He said in part, "I believe the Auxiliary is going to accomplish a great deal of good in the instruction of the public, and for the cause of scientific medicine." He urged the Auxiliary to stand behind the Health Department and especially to see that each doctor promptly reported each birth and each death. He said because of the lack of other organizations, it is the Auxiliary in the small rural districts which will do the best work, looking of course, to the State and National organizations for guidance. He was also very complimentary in regard to work being done in extending the circulation of *Hygeia.*

Dr. West's talk was followed by the reading of the Minutes, report of the Treasurer and the Corresponding Secretary. The President's report took the form of answering a much asked question "Why an Auxiliary?" and was so well received that the assembly ordered a copy to be made and sent to each County Auxiliary.

There was a splendid address by Mrs. Frantz Naylor, President of the Woman's Club of Norfolk. She gave an outline of the Auxiliary's work in public health in the Club, in which she stated the health program had already been adopted similar to that advised by Dr. West. Her principal talk was about the early history of Norfolk.

The report from the ten District Chairmen showed a marked increase in the Auxiliary work throughout the State.

The nominating Committee's report was read and the elections were as follows:

PRESIDENT—Mrs. Southgate Leigh, Norfolk, Va.

1ST VICE-PRESIDENT—Mrs. Frances Whittle Upshur, Richmond, Va.

2ND VICE-PRESIDENT—Mrs. T. J. Hughes, Roanoke, Va.

3RD VICE-PRESIDENT.—Mrs. Don Peters, Lynchburg, Va.

TREASURER—Mrs. Joseph T. Buxton, Newport News, Va.

SECRETARY—Mrs. E. F. Truitt, Westover Ave., Norfolk, Va.

STANDING COMMITTEES:

EDUCATION AND PUBLICITY—Mrs. T. J. Hughes, Roanoke, Va.

HYGEIA—Mrs. Louis Berlin, Graydon, Ave., Norfolk, Va.

LEGISLATIVE—Mrs. J. W. Preston, Roanoke, Va.

ORGANIZATION—Mrs. Allison Hodges, Richmond, Va.

PARLIAMENTARIAN—Mrs. R. L. Payne, Sr., Westover Ave., Norfolk, Va.

Let us beware of losing our enthusiasm. Let us ever glory in something—and strive to attain our admiration for all that would ennoble—and our interest in all that would enrich and beautify our life.—*Selected.*

The Truth About Medicine

In addition to the articles enumerated in our letter of September 25, tne following have been accepted:

B. B. Culture Laboratory, Inc.
Bacillus Acidophilus Culture (B. A. Culture).
Eli Lilly & Co.
Pertussis Vaccine—Lilly, 5 cc.
Scarlet Fever Streptococcus Antitoxin—Lilly (Refined and Concentrated), 1 syringe.
H. K. Mulford Co.
High Ragweed Pollen Extract—Mulford; Lamb's Quarters Pollen Extract—Mulford; Low Ragweed Pollen Extract—Mulford; Ragweed Pollen Extract (Fall)—Mulford; Timothy Pollen Extract (Spring)—Mulford; Water Hemp Pollen Extract—Mulford; Wormwood Pollen Extract—Mulford.
Butternut Protein Extract—Mulford; Cheese Protein Extract—Mulford; Cherry Protein Extract—Mulford; Cocoanut Protein Extract—Mulford; Crab Protein Extract—Mulford; Duck Protein

Extract—Mulford; Duck Feathers Protein Extract—Mulford; Garlic Protein Extract—Mulford— Ginger Protein Extract—Mulford; Goose Protein Extract—Mulford; Grape Protein Extract—Mulford; Grapefruit Protein Extract—Mulford; Haddock Protein Extract—Mulford; Halibut Protein Extract—Mulford; Herring Protein Extract—Mulford; Mustard Protein Extract—Mulford; Nutmeg Protein Extract—Mulford; Paprika Protein Extract—Mulford; Parsley Protein Extract—Mulford; Parsnip Protein Extract—Mulford; Peach Protein Extract—Mulford; Pear Protein Extract—Mulford; Pecan Protein Extract—Mulford; Pineapple Protein Extract—Mulford; Prune Protein Extract—Mulford; Raisin Protein Extract—Mulford; Shrimp Protein Extract—Mulford; Sole Protein Extract—Mulford; Tuna Fish Protein Extract—Mulford; Turnip Protein Extract—Mulford; Walnut (Black) Protein Extract—Mulford.

Scarlet Fever Streptococcus Antitoxin Concentrated (for the blanching test), 1 cc.

Parke, Davis & Co.

Ovarian Residue Soluble Extract—P. D. & Co. Ampules Ovarian Residue Soluble Extract—P. D. & Co., 1 cc.

Richards, Inc.

Psyllium Seed—Richards.

Nonproprietary Articles.

Psyllium Seed.

CHANGE OF AGENCY

Siomine, formerly distributed by Howard-Holt Company, is now distributed by Pitman-Moore Company, which supplies ½ gr., 1 gr., 2 gr., and 5 gr. capsules. The Council has continued the acceptance of Siomine under the new distributor.

NEW AND NONOFFICIAL REMEDIES

Ipral.—Calcium ethylisopropylbarbiturate. — Ipral has the therapeutic properties of barbituric acid, but it is soluble in water and is absorbed promptly. It is claimed that it is excreted rapidly, but some action persists for twenty-four hours. Ipral is used as a hypnotic to combat restlessness, irritability and sleeplessness. It is marketed in 2 grain tablets only. E. R. Squibb & Sons, New York.

Ampules Radium Chloride, 2 cc.—United States Radium Corp. (radium element, 50 micrograms).—For a discussion of the actions, uses and dosage of radium chloride, see New and Nonofficial Remedies, 1926, p. 302, "Radium and Radium Salts." United States Radium Corp., New York.

Ampules Radium Chloride, 2 cc.—United States Radium Corp. (radium element, 2 micrograms). For Drinking Use.—For a discussion of the internal use of radium chloride, see New and Nonofficial Remedies, 1926, p. 302, "Radium and Radium Salts." United States Radium Corp., New York. (Jour. A. M. A., Oct. 2, 1926, p. 1127.)

Ovarian Substance Soluble Extract—P. D. & Co.—A solution of an extract of desiccated beef and hog ovaries in physiological solution of sodium chloride, each cc. containing 4.04 Gm. of soluble extract. The actions and uses of ovary preparations are discussed in New and Nonofficial Remedies, 1926, p. 269. The product is marketed in 1 cc. ampules. Parke, Davis & Co., Detroit. (Jour A. M. A., Oct. 16, 1926, p. 1303.)

Pertussis Vaccine—Lilly.—(New and Nonofficial Remedies, 1926, p. 352). This product is also marketed in single 5 cc. vial packages containing 5,000 million killed bacteria per cc. Eli Lilly & Co., Indianapolis.

Scarlet Fever Streptococcus Antitoxin—Lilly (Refined and Concentrated).—(New and Nonofficial Remedies, 1926, p. 332). This product is also marketed in packages of one syringe (prophylactic dose) containing sufficient antitoxin to neutralize 150,000 skin test units. Eli Lilly & Co., Indianapolis.

Scarlet Fever Streptococcus Antitoxin Concentrated—Mulford.—(Jour. A. M. A., May 8, 1926. p. 1440).—This product is also marketed in single 1 cc. vial packages (for the diagnostic blanching test) containing sufficient scarlet fever antitoxin for five tests. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., Oct. 23, 1926, p. 1393).

Pollen Extracts—Mulford.—In addition to the Pollen Extracts—Mulford described in New and Nonofficial Remedies, 1926, p. 33, the following products, marketed in 5 cc. vials containing 500 units per cc., have been accepted: High Ragweed Pollen Extract—Mulford; Low Ragweed Pollen Extract—Mulford; Water Hemp Pollen Extract—Mulford; also the following products marketed in packages of three 5 cc. vials containing, respectively, 250, 500 and 1,000 units per cc.: Lamb's Quarters Pollen Extract—Mulford; Ragweed Pollen Extract (Fall)—Mulford; Timothy Pollen Extract (Spring)—Mulford; Wormwood Pollen Extract—Mulford. (Jour. A. M. A., Oct. 30, 1926, p. 1479).

PROPAGANDA FOR REFORM

Ephedrine.—The Council on Pharmacy and Chemistry publishes a report on ephedrine. Ephedrine is an alkaloid first obtained in 1887. Chemically, it is closely related to epinephrine. Ephedrine hydrochloride and ephedrine sulphate are soluble in water. Ephedrine is claimed to produce effects similar to epinephrine. Its most important effects thus far reported consist in a rather lasting rise of blood pressure on intravenous or intramuscular injection. Clinically, promising results have been reported from the use of ephedrine, especially in asthma and for shrinking the turbinated bodies. The clinical trials which have been reported in this country have been carried out with ephedrine sulphate made in the Peking Union Medical College. The Council is informed that the Abbott Laboratories will shortly be in a position to supply a salt of ephedrine obtained from this source. Burroughs, Wellcome & Co., London, supply ephedrine hydrochloride for experimental purposes and have supplied the Council with a specimen of the product and the tests and standards used for its control. Eli Lilly & Co. has announced that it is marketing ephedrine sulphate, containing a small amount of pseudo-ephedrine, under the name "Fedrin." The Council is considering the question of recognizing the proprietary name for this product, and the evidence for its value and control. The A. M. A. Chemical Laboratory has taken up the establishment of standards for ephedrine hydrochloride and ephedrine sulphate. The Council has postponed the acceptance of ephedrine or its salts for New and Non-official Remedies to await confirmatory clinical evidence, and until acceptable brands of the drug are available. (Jour. A. M. A., Sept. 11, 1926, p. 849).

The Use of Codeine.—In a report by Dr. Carleton Simon to the Louisiana State Board of Health, it is stated that an extremely large quantity of codeine is consumed in Louisiana, but this, Dr. Simon believes, has no connection with addiction. Its use has been largely increased by the reduction in available heroin. In Dr. Simon's opinion, a connection between codeine and drug addiction has not been demonstrated, but the use of codeine may produce a familiarity with the action of narcotics. The use of codeine is held to be objectionable, also, in that it encourages the cultivation of the poppy plant and stimulates the importation of opium into the United States. (Jour. A. M. A., Sept. 11, 1926, p. 853).

XUM

Aurine Ear Balsam.—This is put out by the Aurine Remedy Co., Chicago. The main feature of the Aurine advertising is that Mr. Folds, who had "suffered fifteen years," was "relieved almost at once" by the balsam. Mr. Folds appears to be the manager of Aurine Remedy Co. The preparation sells at $2 per one ounce bottle. The A. M. A. Chemical Laboratory reports that the "balsam" is essentially a colored aromatic 66 per cent solution of glycerin, to which has been added a very small amount of boric acid and a local anesthetic resembling Butyn. This simple mixture is sold under the claim that no matter what ear ailment you may be suffering from, you will get relief if you will use Aurine. (Jour. A. M. A., Sept. 11, 1926, p. 867).

Universal Ban on Heroin.—The Interparliamentary Union will be called on at its meeting in 1927 to determine whether a universal ban shall or shall not be placed on diacetylmorphine (heroin), if a resolution adopted at a recent conference in Geneva is effective. The resolution was adopted on the initiative of Stephen G. Porter, chairman of the Committee on Foreign Affairs of the U. S. House of Representatives, one of the U. S. delegates to the conference. Mr. Porter cited the action of the House of Delegates of the A. M. A., in 1920, recommending that heroin be eliminated from all medicinal preparations and that its manufacture and sale in the U. S. be prohibited. Mr. Porter is convinced that at least one-third, or one-half, of the crimes of violence committed in the large cities of the U. S. by the so-called gunmen and others are committed by heroin addicts. (Jour. A. M. A., Sept. 18, 1926, p. 944).

K-17 or Rattlesnake Oil, Debarred from the Mails.—The Greene Laboratories (which were not laboratories at all), was a trade name adopted by Cooley H. Greene and his wife, and the business consisted in the advertising and sale through the mails of an alleged cure for deafness called K-17, formerly known as Rattlesnake Oil. The stuff was manufactured by George A. Breon, Kansas City, who, presumably, is the same George A. Breon, who comes to the medical profession in the guise of a manufacturer of alleged reputable pharmaceutical products. On April 3, 1926, a fraud order was issued, debarring the Greene Laboratories and C. H. Greene from the use of the mails. (Jour. A. M. A., Sept. 18, 1926, p. 959).

The Standardization of Insulin.—Several international conferences in relation to the standardization of insulin have been convened by the health organization of the League of Nations. At the last conference approved methods of bio-assay for insulin were adopted, and the unit as provisionally defined by the Insulin Committee of the University of Toronto was accepted. (Jour. A. M. A., Sept. 25, 1926, p. 1040).

Numoquin Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Numoquin is the proprietary, non-descriptive, therapeutically suggestive name under which Merck & Co. markets ethylhydrocupreine. Ethylhydrocupreine is a synthetic derivative of cupreine, an alkaloid occuring together with quinine in cuprea bark. The Council reports that ethylhydrocupreine has the antimalarial and anesthetic action of quinine, but that toxic symptoms are more liable to occur. Merck & Co. advertise Numoquin for use in the treatment of pneumonia. The evidence for this recommendation is practically of no value. The Council found Numoquin unacceptable for New and Non-official Remedies because the drug is marketed with unwarranted therapeutic claims and under a name that is therapeutically suggestive. (Jour. A. M. A., Sept. 25, 1926, p. 1055).

Yeastone (Merck & Co.)—The advertising circular claims that Yeastone is "useful in chronic constipation, digestive disorders, acne, furunculosis and in the deficiency diseases" and asserts that "in therapeutic activity a 1½-grain pill corresponds to one yeast cake." New and Non-official Remedies, 1926, under "Yeast Preparations," discusses the propaganda that has been made in favor of the therapeutic use of vitamin B preparations, and states that "at all events, the alleged curative or tonic value of special vitamin B bearing products has been emphasized through widespread advertising to an extent unjustified by available evidence." A report of the Connecticut Agricultural Experiment Station reports feeding trials with Yeastone: "No satisfactory growth was secured in any of the trials. Two cases developed polyneuritis, one of which was acute. The results do not show any merit in the product from the standpoint of water-soluble B vitamin." (Jour. A. M. A., Sept. 25, 1926, p. 1055).

Lavex.—Lavex is known to the public best as an alleged cure for "catarrh." It is put on the market by the Lavex Chemical Co., Kansas City. Lavex appears to be a new name for what used to be called "Maignen's Antiseptic Powder," on which the Council on Pharmacy and Chemistry published a report in 1914 and, which, in 1915 the government declared misbranded because of false and fraudulent claims. Now the Post Office has put a stop to this profitable fraud by debarring from the mails the Lavex Chemical Co. and W. R. Smith, the vice-president and secretary. Lavex is put up in the form of a powder, a white tablet and a pink tablet. Other preparations containing practically the same ingredients as those contained in the "Lavex" powder are sold under the names "Lavex Vitamines," "Lavex Pyorrhea Remedy," "Lavex Hayfever and Rose Cold Treatment," "Lavex Cold Remedy," "Lavanio Douche Powder," "Lavex Stomach Tablets," and "Lavex Throat Tablets." The ingredients of the principal preparation, "Lavex" powder, as furnished the Post Office inspector by the promotors are as follows: Water-slaked lime 15 parts, sodium carbonate (soda ash) 15 parts, boric acid 3 parts, aluminum sulphate 2 parts, perfume. (Jour. A. M. A., Oct. 9, 1926, p. 1232).

Physical Therapy.—The Council on Physical Therapy of the American Medical Association publishes a report on the present status of physical therapy. The Council cautions that while there are certain definite indications for the use of some one or a combination of several physical agencies in the treatment of disease, it is harmful practice to depend on these agencies alone, to use them in place of better proved methods, or to employ them without having first thoroughly studied the patient from the standpoint of diagnosis. The Council warns against the indiscriminate use of physical measures and the danger that their use may lead into dishonest practice or quackery. The physical measures that have been found to have certain therapeutic value include: 1. Heat, Natural and Artificial. 2. Hydrotherapy. 3. Light. 4. Electricity. 5. Massage. 6. Therapeutic Exercises. The Council feels that the following considerations must receive the most careful attention of the medical profession: 1. Physics, physiology and biochemistry must be called on to dispel the empiricism of the past and to prove the value of various physical agencies. 2. Physical therapy must be recognized as a definite part of medicine, practiced and controlled by graduate physicians. 3. Since physical therapy is a definite part of medicine, every medical school should give thorough training in this subject. 4. Persistent, prolonged effort must be made to eradicate the abuses of physical therapy. The Council proposes

to point out to the medical profession the advantages and the disadvantages of physical therapy so that its abuses may be reduced to a minimum, and its scientific possibilities may be appreciated. (Jour. A. M. A., Oct. 16, 1926, p. 1302).

The Campaign Against Nostrums in Central America.—A Nicaraguan pharmaceutic journal refers to the efforts made in Nicaragua to protect the public against nostrum exploitation, pointing out that such products are manufactured in the U. S. only for exportation, their use being forbidden at home. The blame is placed on American "manufacturing houses which take advantage of the lack of protecting laws as well as the unscrupulousness of dealers." The protest is accompanied by the publication of the names of forty preparations whose sale has been recently forbidden in Guatemala. (Jour. A. M. A., Oct. 16, 1926, p. 1307).

Toxivi and Toxok Not Acceptable For N. N. R.—The Council on Pharmacy and Chemistry reports that according to the Cutter Laboratory, Berkeley, Cal., Toxivi is stated to be an extract of *Rhus toxicodendron* for use in the prophylactic and therapeutic treatment of dermatitis caused by poison ivy. Similarly, Toxok is claimed to be an extract of *Rhus diversiloba* for use in prophylactic and therapeutic treatment of dermatitis caused by poison oak. The Council found Toxivi and Toxok unacceptable for New and Nonofficial Remedies, because the statement of their composition and strength is indefinite; because the claims advanced for them are not warranted, and because they are unoriginal preparations marketed under proprietary nondescriptive names. (Jour. A. M. A., Oct. 16, 1926, p. 1321).

Harrower's Organotherapeutic Indicator.—To advertise its pluriglandular products, the Harrower Laboratory uses a device containing an "indicator" in the form of an arrowhead, the shaft of which is a slot in a disk, superimposed on a larger disk. Around the edge of the larger disk are the names of some seventy diseases or disease conditions. When the arrow is rotated to point to any one of these names, one or two numbers become visible through the slot: these refer to the list of "pluriglandular formulas" on the back of the disk. Each condition has its appropriate (?) formula. The Council on Pharmacy and Chemistry has reported on a number of Harrower gland mixtures, pointing out the lack of evidence for their efficacy when given by mouth and also the irrationality of prescribing mixtures that resemble those of the old fashioned shotgun nostrums. The fact that it is apparently profitable for the Harrower Laboratory, Inc. to send out such advertising as that described, is a sad reflection on those physicians who allow themselves to be influenced by "literature" that is sent out by commercial houses. (Jour. A. M. A., Oct. 16, 1926, p. 1322).

Potassium Chlorate Tablets.—The saturated solution of potassium chlorate has been much used as a mouth wash in stomatitis. It is also employed as a gargle in the treatment of pharyngitis. Its value in these conditions is, however, uncertain. Holding tablets of potassium chlorate in the mouth gives a more thorough medication and probably does no harm if one tablet is used at intervals of an hour or two. The internal use of potassium chlorate is no longer recommended. Large doses are actively poisonous. (Jour. A. M. A., Oct. 16, 1926, p. 1323).

Vaccine Treatment of Colds.—It is not definitely known whether or not a cold is the result of a specific infectious process. The prophylactic as well as the curative value of vaccine therapy in this condition is therefore quite problematic. What we know about the nature of the affliction makes it highly improbable that much good can be accomplished by means of vaccine, and clinical experience seems to substantiate these deductions. (Jour A. M. A., Oct. 23, 1926, p. 1412).

Book Announcements

The Medical Record Visiting List or Physician's Diary for 1927. Revised. New York. William Wood and Company, Publishers. Flexible leather substitute in red or black with gilt edges. Size 6½ by 3¾ inches. 30-patients per week size, $1.75; 60-patients, $2.00; 90 patients, $2.50. Name stamped in gold, 25 cents extra; name and address, 50 cents. Postage prepaid.

This book contains in addition to the visiting list and memoranda pages a number of tables which will be found useful for ready reference. The various tables of dosage, etc., have been carefully revised in accordance with the latest revised edition of the U. S. Pharmacopeia.

Life Insurance Medicine. A study of Its Problems and Their Relation to Clinical Medicine. By MEMBERS OF THE MEDICAL DEPARTMENT OF THE NEW ENGLAND MUTUAL LIFE INSURANCE COMPANY. Volume I. Published by New England Mutual Life Insurance Co., 87 Milk Street, Boston, Mass. 1926.

The Human Body. By MARIE CARMICHAEL STOPES, Doctor of Science, London; President of the society C. B. C. and Racial Integrity, etc. G. P. Putnam's Sons. New York and London. The Knickerbocker Press. 1926. 8vo of 268 pages with 53 illustrations and color plates. Price $2.50.

Human Pathology. A Textbook by HOWARD T. KARSNER, M. D., Professor of Pathology, School of Medicine, Western Reserve University, Cleveland, Ohio. With an Introduction by SIMON FLEXNER, M. D. Philadelphia and London. J. B. Lippincott Company. 1926. 8vo of 980 pages. 29 illustrations in color and 448 in black and white. Cloth. Price $10.00.

A Sound Economic Basis for Schools of Nursing and Other Addresses. By MARY ADELAIDE NUTTING, R. N., M. A., Principal of the School of Nursing and Superintendent of Nurses, The Johns Hopkins Hospital School of Nursing, Baltimore, 1894-1907. Professor of Nursing and Health, Teachers College, Columbia University, 1907-1925. G. P. Putnam's Sons, New York and London. The Knickerbocker Press. 1926. 8vo of 372 pages. Price $2.50.

The Scientific Basis of Chemotherapy. By IWAN I. OSTROMISLENSKY, Ph.D., M. D., Formerly Director of the Chemotherapeutic Section of the Scientific Institute, Glavchimfarmzaw, Moscow. New Dualistic Theory and Its Relation to Ehrlich's Theory of Side-Chains. Mechanism of the Curative Action of Salvarsan Preparations, of Quinine and of Pyridium. Theoretical Hyper-Salvarsan. Elemental Postulates of Rational Therapy, etc. New York. 1926. 142 pages. Paper. Obtainable from the author, 280 Broadway, New York City.

XUM

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Editorial

Diabetes Mellitus and its Inter-Locking Maladies.

Obesity and infection are often dual factors in the pathogenesis of diabetes. The excessively fat and prolongedly infected body, from one or both of these abnormalities, may become pathologic in many ways. But these factors, combined or alone, obtain as etiologic ones in most cases of diabetes. And they usually exist in the body a long time before clinical diabetes appears. Likewise, before and after the diabetic era, these etiologic factors, added to true diabetic pathologic elements, bring about certain inter-locking degenerations in the diabetic body. And, remarkable to note, patients who have had diabetes for years die (particularly now that insulin holds in leash so successfully its *bete noire*, coma) from diseased states clearly outside of diabetes mellitus itself. So it is, that chronic hyperglycemia with all that that means, chronic hyperalimentation, and chronic infection bring about collateral degenerative diseases. Clinicians have long recognized this: one must deal, in the treatment of diabetes, with a group of complicating factors. Often these degenerative maladies play a paramount part in the problem of prolonging life tenure. But after all, these inter-related maladies of diabetes are best controlled through the management of diabetes. For as blood sugar and metabolism approach a normal, through dietetic and insulin treatment, in diabetes, complications are best in hand. It is then, through control, so far as possible, of the diabetic state, one finds basic therapeutic measures by which to defer death from the degenerative maladies of diabetes, as well as from the toxic death of diabetic coma.

In order to emphasize the importance now, in these days of insulin, of degenerative diseases in diabetes, one might note necropsy findings in fifty-eight fatal cases of diabetes as reported by Wilder*, of the Mayo Clinic. There were eighty-one deaths at the Mayo Clinic, in two thousand four hundred and sixty-nine cases of diabetes, treated in the period of six years preceding October, 1925. Of the eighty-one deaths, thirty-three occurred following operations. Diabetic coma was the apparent cause of death in nineteen cases without having had operation and four died in coma after an operation. But interesting to observe, since the discovery of and use of insulin, only four deaths from coma have occurred and no death from coma after an operation. The majority of these patients were fat and were more than fifty years in age. Remarkable to say, in this series of diabetic deaths, only ten died as a result of diabetes alone. The causes of death in the remainder were degenerations and operations. Necropsy was performed upon fifty-eight of the eighty-one fatal cases and the following items of pathology were noted by Wilder; gall-stones in sixteen; pancreatic stones in three; sclerosis of kidneys in fourteen: diffuse kidney disease in four: arteriosclerosis in nearly all who were over forty years of age; gangrene in fourteen; coronary sclerosis and myocardial degeneration in 75 per cent of the hearts examined; exophthalmic goiter in four. Pancreatic changes were of interest: fatty changes in the islands were noted in eleven. In some of the severe cases of diabetes, pancreatic lesions observed at necropsy were trivial; in mild cases of diabetes, in some instances, coming to death from complications, pancreatic lesions were severe.

Diseases of the Liver and Pancreas in Diabetes.

One should keep well in mind liver function when dealing with diabetes. Bile formation and bile flow, carbohydrate storage function, urea function, and the fat function of the liver, all, have an added functional requirement in diabetes mellitus. The unbal-

*Wilder: Collected Papers of the Mayo Clinic, 1925, XVII, page 544.

anced ration, with its low carbohydrates, its maximum proteins, and its high fats, requires of the liver a wide range of compensatory function. The liver functions are all strained in diabetes. Besides, in diabetes, complications of chronic infections of the gall-tract with or without the formation of gall-stones, coincident hepatitis, that so often is found, make for additional complicating possibilities. Every diabetic may be suspected of having hepatic complications in acute or chronic form, in one way or another. The more chronic the diabetes, the more degenerative the complication.

The pancreas, also from a like point of view, demands a foremost place in the thoughts of the clinician as he considers the complications of diabetes as well as diabetes itself. The excretory function of the pancreas, so largely influenced and stimulated by the bile output, exerts a crucial influence upon the essential digestion of the physiologically disproportioned diabetic ration; starch, protein and fat. The enzymes of pancreatic secretion or juice are vitally needed in intestinal digestion, because without them enteric digestion is abridged, disordered, if not materially prevented. Such a curtailment of caloric values through shortage in the digestion, adds its modicum of trouble in diabetic pathology.

The insulin function, besides, of the pancreas assumes a place of first importance in contemplating the pathology of diabetes, mild or severe. Degenerative disease of the islands, held in check, revived r relieved by present-day treatment, affords the only hope for an increase of carbohydrate tolerance and for bringing about clinical improvement. The pancreatic pathology found at necropsy is well illustrated by Wilder's findings above noted, as well as by Osler's who found in fifteen autopsies nine cases of morbid pancreatic degeneration: fatty, hyaline, and interstitial degeneration.

Cardio-Vascular Pathology in Diabetes.

Necropsy and the clinical course of cases of diabetes show a frequent association of serious cardio-vascular pathology. Death may result and clinical symptoms may arise, not so directly from the diabetes, but from pathologic progression in the cardio-vascular system. This disease complex renders the problems of management doubly difficult. While internal medicine abounds in many such interesting disease relationships, in no other is the situation more filled with complexity and difficulty. Corrective efforts in a supposed primary malady, may or may not be the surest therapeueic route to follow for the purpose of relieving the supposed secondary or complicating pathology. But, as a generalization, the present day management of diabetes with diet and insulin, whereby the blood sugar level is made to approach nearer normal, urinary findings to become freer of sugar and ketones, and metabolic balances to be better maintained, offers the most successful therapeutic opportunity for relieving symptoms and for holding in check progressive degenerative pathology in the cardio-vascular system. Morbid anatomy of diabetes shows no constant lesions in the heart or arteries. Surprisingly numerous, however, are the diabetic patients who show signs or symptoms of heart disease during life, and at necropsy, evidence of myocarditis. Cases of cardiac hypertrophy and dilatation, coronary sclerosis and coronary thrombosis are not infrequently observed in diabetics. The heart of the diabetic is worthy of careful scrutiny. The same is true of the general vascular system. As noted by Wilder, arteriosclerosis is very frequently in evidence. Obliterative thrombosis of peripheral vessels shows in gangrene and perforative ulcerations.

Likewise, pathologic findings at post mortem, as well as from clinical observations, disclose a frequent combination of diabetes and Bright's disease. Nephritis in several forms is found accentuated by diabetes, making the complexity of the therapeutic problem more intricate; for here the situation is one of impaired renal function with its retention of urinary solids as well as hyperglycemia. In such a pathologic dilemma, fatality may eventuate not from diabetic coma, but from uremic coma, or both. Post mortem examinations of diabetic kidney cases show diffuse nephritis with fatty degeneration, with hyalin changes often found in tubal epithelium as noted in autopsies by Osler and others.

Syphilis, Tuberculosis, Pneumonia and Blood Infection in Diabetes.

These infections in the diabetic create speedy complicating pathology and a rapidly malignant toxemia which renders prognosis imminently ominous. In the syphilitic diabetic, administration of "specific" treatment is closely related to an adequate antecedent administration of diet and insulin. Insulin computations

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and caloric dietary calculations, balanced to meet the diabetic situation, precede in importance intravenous arsenical or mercuric specifics. However, as always, individual exigencies determine the order of treatment when pathologic and metabolic problems seem to be at such cross purposes.

Again, in tuberculous diabetics and in pneumonia in the diabetic patient, metabolism is the fundamental problem. The pathology of these complications moves with steady and rapid progress. So it is in blood infection and in operative procedures in diabetes. This is strikingly emphasized by Wilder's observation on the effect of insulin upon the death rate by coma in cases of diabetes operated upon at the Mayo Clinic.

A. G. B., JR.

The Koch Cancer Cure.

The dictum of Barnum that the American people love to be humbugged seems true; certainly when this statement is applied to cults and charlatanism there can be no doubt of its accuracy. From the days of the Thompson tractors and the "electropois" to Abrams' electronic treatment and the present day of chiropractic and specifics for cancer,—through all of this there seems to run the same general principle of Barnum, else they could not have existed.

A pamphlet issued by the American Medical Association called "The Koch Cancer Treatment" contains the essential facts about Koch and his treatment. It will be mailed to any doctor writing to the American Medical Association, 535 North Dearborn Street, Chicago. It seems strange that the contents of this reprint are so little known, particularly when we find the bulletin of the Koch Cancer Foundation widely distributed to the medical profession and being received with as much seriousness as if it proceeded from the greatest scientists in the world. This pamphlet of the American Medical Association goes very fully into the history of the so-called treatment of Koch, quoting editorials in the *Journal of the American Medical Association* and giving extracts from reports of committees that have investigated the treatment, as well as the details of the financial arrangement. Those interested should see the full reprint. A few of its important features are quoted.

It seems that Dr. William F. Koch, of Detroit, graduated in medicine in 1918 at the Detroit College of Medicine and Surgery. Previous to this he had been an assistant in physiology and an instructor in histology in the University of Michigan Medical School, as well as professor of physiology in the Detroit College of Medicine and Surgery. He had never been a professor in the University of Michigan. Less than a year after his graduation in medicine, Dr. Koch announced that he "had developed a real specific cure for cancer." It was claimed that he had developed a differential poison that would destroy the "cancer germ" without injuring the host. During the seven years since this announcement Koch has kept his remedy secret.

Naturally the medical profession and patients suffering with cancer are interested in the results. While it would be desirable not to keep the remedy secret, if it can cure cancer victims should have the benefit of it.

The Wayne County Medical Society, of Detroit, Michigan, has on three separate occasions appointed a committee to investigate Koch's work. In each instance the report was unfavorable. The last report published in the Bulletin of the Wayne County Medical Society, June 30, 1924, was by the Cancer Committee of this society. This Committee met at Dr. Koch's office on November 5, 1923. Nine patients were chosen by Dr. Koch as representing his cures and were demonstrated to the Committee. Some of them had been previously described in an advertising booklet called "St. Mark's Sanitarium Bulletin" which was distributed to the public. In addition to these nine cases submitted by Dr. Koch to the entire Committee, two members of the Committee carefully examined four additional cases. Of these thirteen cases, which presumably represented the best results Koch could secure, no single one seemed to prove any efficacy of Koch's serum. The patients had either received X-ray or radium treatment previous to having had the Koch serum, or else had not been satisfactorily demonstrated as cancer cases before the treatment. Take the last four for instance:

"Case No. 10.—Myxosarcoma with no results from Koch's treatment.

"Case No. 11.—Hypernephroma with no results from Koch's treatment.

"Case No. 12.—Non-malignant tumor of ovary. Treated by Dr. Koch for cancer.

"Case No. 13.—Hopeless metastatic teratoma

of testis. Died soon after Koch's treatment."

The report of the Committee closes with the following statement:

"Out of the hundreds of cases Koch has probably treated, these were demonstrated to us as his best results. In no instance have we found a case where the diagnosis of cancer was absolutely established and where no other form of treatment had been used in which a cure or any decided benefit had ever been obtained."

The *Journal of the American Medical Association* has received hundreds of letters from physicians and laymen inquiring about the Koch remedy. Some mention individuals who were taking or who expected to take the Koch treatment for cancer. From the addresses given in these letters the officials of the *Journal of the American Medical Association* wrote to the individuals mentioned. Only a few of them have answered, and the pamphlet gives the essential points in eleven of these answers. These three are typical of the eleven:

"Dr. B., New York.—Had three patients who took the Koch treatment. (1) Woman with carcinoma of rectum; 'received four injections, reactions were terrible. She did not improve but steadily became worse and died.' (2) Elderly man with beginning cancer of stomach; was 'given two treatments and promptly became worse and died.' (3) A case of axillary carcinoma received many treatments; 'Ultimate result was the same—death.'

"Dr. F., Mississippi.—Wrote in January, 1925, that patient with carcinoma of the stomach had received the Koch treatment. Reported in March, 1926, that patient died five months later. Reports also in his last letter the case of man with carcinoma on the side of the nose; took Koch treatment in August, 1925; at the present time the cancer 'is more than twice as large as it was at the time of the treatment.' Reports also that another patient with carcinoma of the cheek received the first Koch treatment in August, 1925, the patient is now 'down in bed and not expected to live.'

"Dr. K., Nebraska.—Wrote in May, 1925, that 'cases of cancer in this vicinity have been treated by means of the (Koch) serum with no results.' Reports in April, 1926, on three cases: (1) Sarcoma in boy of 14, took Koch treatment and died. (2) Patient with carcinoma of pylorus; took treatment and died. (3) Patient with carcinoma of rectum with metastases; took treatment and died."

In February, 1926, the Koch Cancer Foundation, with William F. Koch as "Director," was established and the members of this foundation are as follows:

Frederick Dugdale, M. D.,
C. Everett Field, M. D.,
A. W. Hoyt, M. D.,
W. Wallace Fritz, M. D.,
Elnora C. Folkmar, M. D.,
Lorenz L. Dill, M. D.,
Albert Lynch, M. D.

The American Medical Association analyzes the records of these men and gives photostatic reproductions of newspaper notices or advertisements of Dr. Frederick Dugdale, of Dr. W. W. Fritz and of Dr. Lorenz L. Dill, together with brief biographic notes on all of them. Dr. Dugdale advertised as a specialist in "rheumatism, cancer, chronic blood and nervous diseases." Dr. Hoyt was one of the disciples of the electronic reactions of Abrams and appears to have been interested in the "Auto-Hemic Serum" of Rogers.

Dr. Fritz has after his name the letters M. D., D. D. S., N. D., D. O., D. C., indicating that in addition to being a doctor and a dentist he is a naprapath, an osteopath and a chiropractor.

Dr. Dill graduated from the Homeopathic Medical School in 1910. In 1924 he espoused the cause of the Koch cancer cure, and sent out printed cards bearing the map of Indiana, showing how the Logansport Cancer Institute, of which he was a director and where the Koch Cancer Treatment was given, could be reached. His statements implied that the Koch nostrum possessed the same scientific value in the treatment of cancer as the antitoxin of diphtheria did in the treatment of diphtheria.

Dr. C. Everett Field, of Brooklyn, has been recently dropped from his county medical association.

Dr. Folkmar is one of the lessees of Abrams "Oscilloclasts" and an exploiter of "Bio-Dynamo-Chromatic-Diagnosis."

Dr. Lynch was apparently connected with the Koch organization almost from the beginning.

There has also been organized what is known as the Koch Laboratories, Inc. The incorporators are as follows:

William F. Koch, President and Director.

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Louis Koch, Vice-President and Director.
Fred C. Koch, Treasurer and Director.
Clarence Lehr, Secretary and Director.

There is said to be a contract between the Koch Laboratories and the Koch Cancer Foundation by which the antitoxin shall be distributed through the Foundation only to the stockholders and members. The price of the treatment from the Foundation shall be $110 to both stockholder and member. "According to a statement made by Dr. J. W. Stiers, of Muscatine, Iowa, (who in 1924 was said to be using an apparatus put out by the 'Electronic Research Laboratories' and is now apparently using the Koch 'antitoxin'), the Foundation specifies as a minimum $300 for the first treatment and $200 for any afterward. The difference between the price charged the Koch disciple ($110) and the price the disciple charges the victim ($300) is presumably to cover the risk assumed by the followers of Koch in injecting a secret mixture into the cancer patient."

"The by-laws of the Koch Cancer Foundation provide that only physicians 'whose qualifications have met the approval of the Board of Trustees' and who have 'treated ten or more cases of cancer by the use of Koch's Synthetic Antitoxin' shall be eligible to become stockholders. The stockholders pay $100, for which one share of stock is issued. 'Membership' in the Foundation is to be limited to physicians who are 'able to furnish personal and business references satisfactory to the Board of Trustees.' Such individuals may become members on the payment of a membership fee of $10 and annual dues of $5. Dr. Koch states further that in addition to the funds that will come into the treasury of the Foundation from the sale of treatments, membership fees and annual dues, he expects to purchase 'upwards of $50,000 worth of stock.' It is stated further that the 'foundation' will from now on 'attend to sending out all publicity, pamphlets, literature and the like' and that it is sufficiently financed to carry on the work vigorously for some time to come."

The press agent of the Koch Cancer Foundation is V. E. Scott. Material is sent out from New York to newspapers in the country prepared in the form of news articles for "immediate release." Some of the newspapers are asked to print much of this in the form of news.

We should, perhaps, apologize for going into this matter so fully, but from the persistence of the issuance of the Bulletin of the Koch Cancer Foundation, which is sent regularly to many physicians, and from the general notices that are circulated among physicians and the public, it seems to be the duty of the regular medical profession to investigate and to present the facts. In these times when the American Society for Control of Cancer and other like agencies are emphasizing the importance of recognizing cancer in the early stages and of treating it as soon as possible in order to reduce its mortality, charlatans with their nostrums are only too willing to take advantage of this movement and exploit for their own selfish and financial gain treatments and remedies that not only do not cure cancer but may cause the victim of this dread disease to live in a fool's paradise and to delay what might have been curative treatment until all hope has gone. It is the same old thing over and over again, the medical profession being taunted with unwillingness to look into a new remedy and the unscrupulous charlatans and nostrum venders taking advantage of the psychology of the situation to grow rich at the expense of the health and the lives of their victims. Surely the facts as stated cannot be gainsaid, and there can be no fairer demonstration of the utter futility of the Koch cancer cure than the patient investigation of the three committees appointed from among the best men of the medical profession in Detroit.

J. Shelton Horsley.

News Notes

Christmas Greetings!

May your Christmas be bright,
And its joy and good cheer
Live on like the evergreen
All through the year!

The Southern Medical Association

Held its twentieth annual session in Atlanta, Ga., in November, under the presidency of Dr. C. C. Bass, of New Orleans. There was a registered attendance of nearly 3,000. The scientific program was up to its usual mark and the entertainments were elaborate. Alumni

reunion dinners, fraternity dinners, luncheon clubs, golf and trap shooting added greatly to the pleasure of those attending. Several auxiliary associations held meetings during this same time, thus adding to the interest. The scientific and commercial exhibits were excellent. The Committee on scientific awards, after making its awards, gave honorary mention to the exhibits of two individual members, one of these being Dr. J. S. Horsley, Jr., of Richmond.

Memphis, Tenn., was selected as the 1927 place of meeting, and the following officers were elected: President, Dr. J. Shelton Horsley, Richmond; first vice-prsident, Dr. Frank K. Boland, Atlanta, Ga., and second vice-president, Dr. A. A. Walker, Birmingham, Ala. Mr. C. P. Loranz, Birmingham, was re-elected secretary-manager for a term of five years. Dr. M. Y. Dabney, Birmingham, was last year re-elected editor of the Association's journal for a term of three years.

Married.

Dr. Joseph Thompson Graham, Draper, Va., recently on the staff of the McGuire Clinic, Richmond, and Miss Elsie Carlize Krengel, Richmond.

Dr. Richard J. Beck, neuropsychiatrist of the U. S. Veteran's Bureau, Richmond, and Dr. Regena Johnson, pathologist to Stuart Circle Hospital, Richmond, at Dr. Johnson's home in Bridgeport, Ohio, October 8th. They are now located at 2034 Park Avenue, Richmond.

Dr. Harry F. White, Fishersville, Va., and Miss Germaine Brutsche, recently.

Dr. Henry Leroy Townsend, of the class of '26, Medical College of Virginia, now an intern at Memorial Hospital, Richmond, and Miss Ellen Douglass Pippen, Littleton, N. C., December 1.

Dr. Samuel Bee Woodward and Mrs. Margaret Wood Wilson, of National Soldiers Home, Va., early in November.

Dr. Nat Hawkins Copenhaver and Miss Mary Amelia Slack, both of Bristol, Tenn., October 16.

Some Mortality Figures in Virginia.

The State Bureau of Vital Statistics states that while there has been a great decline in maternity deaths in Virginia in the last few years there are still far more deaths from this cause than should occur. In 1925 there were reported 417 puerperal deaths in this state, 215 white and 202 colored. The rate among the colored mothers was more than double that among the white, which is possibly explained by the fact that midwives are more generally employed by colored than by white patients.

The Bureau further reports 1,528 deaths from cancer in Virginia during 1925, 1,136 being white and 392 colored. The white death rate from this disease is 9.6 per 100,000 higher than the colored. The cancer death rate shows an increase for the past few years, not only in Virginia, but throughout the civilized world, while the disease is rare among primitive people.

Dr. David B. Lepper,

Formerly connected with health work in Virginia, is now health officer of Bluefield, West Virginia.

Loan Fund for Students.

Dr. Lazarus Karp, of Richmond, has established a loan fund at the Medical College of Virginia, Richmond, in memory of his brother, Dr. William Karp, an alumnus of that school, who died in 1918, while on duty at Camp Mead, Md. This is for students who have difficulty in meeting expenses of their medical education. They are expected to pay the interest of their loans to the college and pay the principal after they have left college and are financially able to take care of same.

Dr. H. O. Bell,

Formerly of Richmond, Va., announces his change of address from Essex County Hospital, Cedar Grove, New Jersey, to Essex County Isolation Hospital, Belleville, New Jersey.

Dr. Joseph M. Burke,

Of Norfolk, Va., chief surgeon of the Seaboard Air Line Railway, was presented with a silver loving cup by members of the Southern States' Association of Railway Surgeons at their annual meeting in Atlanta, Ga., last month.

Founders' Day Commemorated by Medical College of Virginia.

On December the 1st, the Medical College of Virginia celebrated its Founders' Day exercises in Monumental Episcopal Church, which is located in what was known as Academy Square. The speakers were Honorable Rosewell Page, second auditor of Virginia, Miss Adele Clark, who is identified with many public welfare movements, and Dr. Wyndham Blanton, member of the college faculty. The program was built around the history of the French Academy of Arts and Sciences, which was

founded in Academy Square, Richmond, in 1786, and had a short existence, as the first institution in America to offer graduate studies, and as a means of diffusing French culture in the new world. The history of the Medical College of Virginia is linked with that of the French Academy, because it was to this square that the Medical College of Virginia was moved in 1845 upon the erection of the building of Egyptian architecture, which is one of the six buildings now used by the College. Dr. W. T. Sanger, president of the College, presided over this meeting which was attended by upwards of 600 members of the board of trustees, faculty and students, wearing caps and gowns.

Dr. Andrew B. Byerly,

Of Cooleemee, N. C., was elected president of the Ninth District Medical Society of North Carolina, at a meeting held recently at Mocksville.

Decrease in Juvenile Delinquency Reported from England and Belgium.

Following close upon the Children's Bureau figures indicating that juvenile delinquency is decreasing in the United States, come reports from London and from Belgium showing a falling off in the number of juvenile offenders. According to the Commissioner of Police of London, the decrease has been continuous in recent years and is still going on. The number of persons dealt with in the juvenile courts of London for indictable offenses during 1925 was 1,151 as against 1,276 in 1924, and more than one-half of the cases were placed on probation.

The director of the Child Welfare Bureau at Brussels reports that juvenile delinquency in Belgium has decreased in the last twelve years. In 1913 the number of minors reported to the office of the public prosecutor was 17,177; in 1923 it was 13,523, and in 1924 it was 12,965. The decrease in the number of cases of vagabondage, habitual begging, stealing, and swindling was particularly noticeable. The report attributed this decrease to the higher wages and general improvement in economic conditions since 1913, and also to the laws providing for special court jurisdiction for minors, for probation, and for special educational measures for neglected, wayward, and delinquent children.

The National Tuberculosis Association,

Which met in Washington, D. C., in October, elected Dr. Henry Sewall, Denver, Col., president, and Dr. George M. Kober, Washington, D. C., secretary.

Dr. Clifton W. Henson,

Son of Dr. and Mrs. J. W. Henson, Richmond, of the class of 26, Medical College of Virginia, left recently for New York City, where he has entered upon his duties as intern at Gouverneur Hospital.

Dr. and Mrs. E. R. Martin,

Newport News, Va., have returned home after a visit to Palmyra, Va.

Dr. G. L. Morriss,

Buckingham, Va., has been appointed treasurer of Buckingham County, Va., to fill the vacancy until the next election of county officers.

The Annual Conference of Secretaries of Constituent State Medical Associations

Was held at the headquarters of the American Medical Association, in Chicago, November 19 and 20, with an excellent attendance of secretaries and editors of the State journals. Dr. W. G. Ricker, secretary of Vermont State Medical Society, presided. On the first day, addresses were made by Dr. Wendell C. Phillips, president, and Dr. Jabez N. Jackson, president-elect of the A. M. A., following which several papers were read which laid much emphasis on county and state organization work. On the second day, the conference was devoted to a discussion of Periodic Examinations of Apparently Healthy Persons.

Apart from the interest to be derived from "listening in" on a discussion of these subjects, it is an inspiration to inspect the A. M. A. plant, all departments of which are open to visitors.

Seaboard Medical Association of Virginia and North Carolina.

As we go to press, this Association is holding its thirty-first annual meeting at New Bern, N. C., under the presidency of Dr. George A. Caton, of that place. An interesting meeting had been planned.

North American Physicians Are Invited to Visit the Clinics of Europe Again in 1927.

In May next year a group of physicians with members of their families from the United States and Canada, under the direction of the Inter-State Post-Graduate Medical Association of North America, will sail from New York to visit the following leading medical centers of the old World: London, Edin-

burgh, Oslo, Stockholm, Upsala, Lund, Copenhagen, Hamburg, Leipzig, Munich, Strasbourg, Heidelberg, Frankfort and Paris.

This will be the third year that foreign assemblies have been conducted under the auspices of this organization. Those of 1925 and 1926 were exceedingly successful and of great benefit to the physicians who took advantage of them. No doubt the 1927 assemblies will meet with equal success.

In including Norway, Sweden and Denmark in the itinerary, the Association is offering the profession an exceptional opportunity to visit and study in some of the finest clinics in the world.

The group of physicians will be limited to a number that can be comfortably accommodated in the clinics which will cover the entire field of medical science.

The price of the trip will be kept as low as possible and yet furnish first-class accommodations. It will be between $1,000.00 and $1,100.00. All physicians who are in good standing in their State or Provincial Society may register. Further information may be obtained from the Managing-Director, Dr. William B. Peck, Freeport, Illinois, or the Travel Department of the American Express Company, 65 Broadway, New York, N. Y., who have charge of the transportation.

Special Courses for Physicians in Treatment of Venereal Disease.

Surgeon General Hugh S. Cumming has announced that the U. S. Public Health Service, as a part of its co-operative work with State health departments in the control of venereal diseases, will give special courses of training to physicians, clinicians, and health officers at its venereal disease clinic, Hot Springs, Arkansas.

This clinic, which is operated by the Public Health Service in a new building belonging to the Department of Interior, offers exceptional opportunities for the study of the venereal diseases, especially in clinical and laboratory diagnosis, treatment methods, and clinic management. Here, studies of the many practical and scientific problems connected with venereal disease control are carried on. Last year 3,570 indigent persons were examined at the clinic; 3,064 cases of syphilis and gonorrhea were diagnosed and given a total of 32,315 treatments.

Surgeon General Cumming states that the instruction courses which now are offered will consist of a series of lectures by the Director and the Consulting Specialists attached to the clinic, demonstrations in laboratory and treatment methods, and practical experience in the diagnosis and treatment of syphilis and gonorrhea in various stages through participation in the routine work of the clinic. New classes of not more than ten physicians will form on the first of each month and the course will continue for a minimum of thirty days. Engraved certificates will be presented by the Public Health Service to those who satisfactorily complete the thirty-day course.

Fees are not charged for this course of instruction. The individual physician, however, will necessarily provide his own travel expense to and from Hot Springs and his living expenses while there.

Interested physicians should write to the local State health officer or to the Surgeon General, U. S. Public Health Service, Washington, D. C., for information or application blanks. Applications should be indorsed by the State health department in which the applicant resides before being submitted to the U. S. Public Health Service.

Dr. L. H. Apperson

Has bought the home and taken over the practice of Dr. J. G. Carter, of 115 West 12th Street, Richmond. Dr. Carter is now in Philadelphia, where he is taking a special course in obstetrics for the purpose of specializing in that branch.

Dr. D. Hunter Marrow,

Of Union Level, Va., has gone to Florida to spend the winter at Daytona Beach, as has been his custom for several years.

Dreams Come True.

Paul Smith's had no little attention this past summer for people all over the country read of the daily doings of their President at the summer White House. Fifty years ago it was also known, but quite exclusively, as a hunting lodge where prominent business men went to shoot in the wilds of the Adirondack woods and forget their cares. The first person to make Paul Smith's and Lake Saranac famous as a winter resort was a young physician, ill with tuberculosis. Dr. Edward Livingston Trudeau, in 1875, with his wife and two little children, went up to the Adirondacks to die amongst his beloved pines and in the forest wilderness that was then Paul Smith's hunt-

XUM

ing lodge. In spite of the cold and hardships his health was benefited, though tuberculosis patients at that time were generally advised to seek warm sunny parts of the country and to remain indoors.

The following seven winters the Trudeaus lived in Saranac Lake village. The town then consisted of a small hotel for guides, a sawmill, a schoolhouse, a few guides' houses and a little store. And that was the beginning of the famous health resort. For in 1883 Trudeau started his cottage sanatorium at Saranac Lake in order that other tuberculosis patients might benefit as he had by the open air treatment. On the spot where he had dreamed his dreams of helping the tuberculous was built the well known "Little Red," as it was called, and two factory girls were his first patients in the humble one-room cottage with its tiny porch for "curing." Trudeau lived to be sixty-seven years of age and with the interest and help of others he made his dreams come true.

Now Trudeau Sanatorium at Saranac Lake is famed the world over. With the patients' cottages grouped about the Administrative building, the Training School for nurses, the Laboratory (the first to be devoted to tuberculosis research in this country, which Trudeau had started with his ridiculously home-made apparatus, in a little room that burned), the infirmary for bedridden patients, post-office, library, and workshop for occupational therapy, Trudeau Sanatorium today is well equipped to carry on our only known treatment and cure for tuberculosis.

There are now in this country 600 hospitals and sanatoria for the treatment of tuberculosis. Of this number there are 312 public institutions with 38,097 beds. Besides the public and private institutions there are semi-private and federal ones. In all we have 67,270 beds, not including 3,000 beds in institutions now under construction.

A country-wide campaign to control tuberculosis was started in 1904. At that time only five states were making any active effort to cope with tuberculosis. Now there are 1,550 state and local organizations working together and during these years since 1904 the death rate has been decreased from over 200 per 100,000 to 90.6 per 100,000. Organized effort, education, and sanatorium development have aided greatly in the decrease.

The dream of the workers in this big tuberculosis campaign is to control tuberculosis and stamp it out as one of the chief causes of death. They need everybody's help, especially in December during the Christmas seal sale, when funds are contributed to carry on their work in the communities in which the seals are sold. Everybody who contributes is joining the group of men and women whose dreams *must* come true.

Dr. Harry Goldstein,

Of the class of '26, Medical College of Virginia, left Richmond, last month for Clifton Forge, Va., where he will be connected with the C. & O. Hospital.

Dr. and Mrs. J. R. Shacklette,

And daughter, of Elkton, Va., recently visited friends in this city.

The South Piedmont Medical Society

Held its regular semi-annual meeting in South Boston, Va., November 16. Supper was served the visitors between the afternoon and evening sessions. Besides a symposium on "Diseases of Childhood," the program included a number of voluntary papers. Dr. E. Howe Miller, Danville, is president, and Dr. George A. Stover, South Boston, secretary.

The next meeting will be held in Lynchburg, on the third Tuesday in April.

Dr. Mosby G. Perrow,

Health officer of Lynchburg, Va., has been elected president of the Washington and Lee alumni chapter in that city.

Maternal and Infant Health Work.

Nearly 1,000,000 babies and pre-school children and approximately 180,000 expectant mothers were reached during the fiscal year 1926 by the National program for the betterment of maternal and infant health carried on by 43 States in co-operation with the Children's Bureau of the U. S. Department of Labor. This announcement by the Children's Bureau comes as a summary of the past year's work under the Maternity and Infancy Act, through which Federal aid is granted to the States for the purpose of improving the health of mothers and babies throughout the United States. The Act was passed in 1921 with provisions for appropriations for a five-year period.

Forty-three States and Hawaii have accepted the Act. Of the total 2,826 counties in these 43 States, 2,313 counties have been reached by the maternity and infancy program.

The Mecklenburg County Medical Society

Held a meeting November 8th, at Boydton, Va., which was well attended. This meeting was called with a view to getting the School Board to co-operate with the County Board of Health in putting into operation the use of toxin-antitoxin in the prevention of diphtheria. Drs. A. T. Finch, of Chase City, G. H. Carter, of Boydton, and H. M. Snead, of South Hill, reported that they had given this preventive to more than seven hundred children in the county. Dr. Grant, of the State Board of Health, gave an outline of the work that had been done in Brunswick County, Va., and stated that 4,320 children in that county had been given the toxin-antitoxin. After a free discussion of the subject, it was decided to petition the County Board of Supervisors to furnish the toxin-antitoxin, in which event the doctors of Mecklenburg County would hold clinics at the different schoolhouses in the county and give this preventive at fifty cents a dose. The school superintendent of the county was much interested in this movement and agreed to work with the doctors in trying to have all pre-school and school children immunized against diphtheria.

The Halifax County Medical Society

Held a called meeting at the time of the South Piedmont meeting, in November, and elected Dr. George A. Stover, South Boston, president to succeed the late Dr. H. S. Belt, and Dr. J. A. Owen, of Turbeville, secretary-treasurer. It was decided to make the county society more active and to have quarterly meetings.

Augusta County Medical Association.

At its last meeting, Dr. W. F. Hartman, R. F. D. 7, Staunton, Va., was elected secretary *vice* Dr. C. W. Putney who recently went to Philadelphia to take a post-graduate course. Dr. H. G. Middlekauff, Weyers Cave, is president.

Dr. F. Page Nelson,

Of Crozet, Va., in November had the misfortune to have his automobile totally destroyed by fire, caused by a short circuit in the rear light. He had just returned from a professional call and his satchel containing instruments was destroyed with the car.

Dr. B. C. Keister,

Washington, D. C., a member of the Medical Society of Virginia, left the latter part of November for Wisconsin, where he expects to spend several months visiting his daughter. On his way, he stopped in Chicago for several weeks to take up some special work on internal medicine and general surgery at the post-graduate schools there.

Dr. Bernard S. Steinberg,

Who was for a time connected with the house staff of Memorial Hospital, Richmond, but recently of Cleveland, Ohio, has been appointed director of research and laboratories at the Toledo Hospital, Toledo, Ohio, and will enter upon his new duties January 1st. Dr. Steinberg has recently been connected with the department of pathology of the Western Reserve University School of Medicine at Cleveland.

Dr. Robert Whitehead,

Richmond, was a recent visitor at his former home, Victoria, Va.

Dr. and Mrs. John A. Tipton

Have returned to their home at Keysville, Va., after a visit to relatives at Pulaski, Va.

That Yellow Slip

Is put in this issue of the journal for the benefit of those who have not paid 1927 assessment to the State Society. If you have attended to this, ignore the slip; if not, your return of the slip with remittance will help us both.

Dr. C. C. Coleman

Has returned to Richmond, after a professional visit to the southwestern part of the State.

Dr. M. H. Watson,

An alumnus of the University of Virginia School of Medicine, and recently of Chatham, Va., has moved to McRoberts, Kentucky, where he is doing contract practice in a coal mining town.

Dr. P. L. Hill,

An alumnus of the Medical College of Virginia, after several years as a medical missionary in Japan, has retired from the work, and sailed the last of November from Kobe, Japan, for this countrq. He expects to arrive in Virginia about Christmas time and his address, for the present, will be Glen Allen, Va.

Hygeia as a Holiday Gift.

Recently a letter was sent to a selected list of laymen announcing that the American Medi-

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cal Association is now publishing *Hygeia*, and describing the features of the magazine. One of the letters came into the hands of a banker in Asheville, North Carolina. So impressed was he with the value of *Hygeia* to everyone that the bank of its own accord and at its own expense took large display space in two Asheville newspapers to reproduce portions of the letter, publicly endorse *Hygeia* and let citizens know that it could be obtained from the American Medical Association, 535 North Dearborn Street, Chicago.

This instance in itself might not have a great deal of significance, but it is typical of the way in which influential individuals, organizations and institutions have received and endorsed *Hygeia*. Without any general advertising, and with conservative efforts to promote circulation, *Hygeia* has become widely known among intelligent laymen and leaders in health work.

What does this mean to the medical profession? If anything, it signifies that the public is awakened and eager on matters of health, and that it looks to the medical profession for information. Thousands of physicians feel this responsibility and help to meet it by keeping a copy of *Hygeia* in their reception rooms.

Another excellent plan which finds favor with many physicians at the holiday season is to give gift subscriptions for *Hygeia* to patients or other friends. It is something that can be given with propriety and with the feeling that it will contribute to the welfare and happiness of the recipient. Special rates are now in effect. One subscription is $3.00; two $5.00; three or more are at the rate of $2.00 each.

Sectional Meeting of American College of Surgeons.

There will be a sectional meeting of the American College of Surgeons in Washington, D. C., on January 17 and 18, 1927. Fellows in attendance will be from the States of Virginia, West Virginia, Maryland and the District of Columbia.

Dr. James A. Shield Receives Honor.

Dr. James Asa Shield, who graduated from Medical College of Virginia last summer, has been selected as one of the four recent graduates from American medical colleges to serve an internship in the American Hospital at Paris. The period of internship is one year. Dr. Shield begins his service July 1, 1927, and expects to devote most of his time to the study of neurology and internal medicine, having for the past two years served as intern at Tucker Sanatorium, this city. He plans to continue this study in the clinics of Vienna, and other European cities after leaving Paris.

National Committee for Mental Hygiene.

At the seventeenth annual meeting of this association in New York City, recently, a paper presented by Dr. C. P. Emerson, of Indianapolis, Ind., emphasized the fact that it is possible for the individual to reach greater heights of mental, moral and emotional efficiency if he will only observe the rules of mental-hygiene. Dr. Frankwood E. Williams, medical director of the National Committee for Mental Hygiene, after reporting upon the society's work for the past year, stated that the Commonwealth Fund had decided to appropriate the sum of $490,000 next year for various mental-hygiene projects, and also announced a gift to the Committee from the Rockefeller Foundation of $40,000 for fellowships for the training of psychiatrists, psychologists and psychiatric social workers in community mental-hygiene technique and methods.

Dr. Charles P. Emerson, of Indianapolis, was re-elected president, and Mr. Clifford W. Beers, founder of the mental-hygiene movement, was re-elected secretary.

The U. S. Civil Service Commission,

Washington, D. C., announces open competitive examinations for junior medical officer (interne), applications to be on file at Washington, D. C., not later than December 30;

For dietitian, applications to be rated as received until December 30; and

For trained nurse and trained nurse (psychiatric), applications to be on file at Washington, D. C., not later than December 31.

Full information and application blanks for any of these may be obtained from the above Commission, at Washington, D. C., or the secretary of the board of U. S. civil service examiners at the post office or custom house in any city.

Dr. B. C. Henson,

Roda, Va., has returned home after a visit to relatives in Louisa, Va.

Scientific Exhibit at A. M. A. Meeting.

Arrangements are being made for the Scientific Exhibit of the American Medical Asso-

ciation in Washington, D. C., May 16-20, 1927. This exhibit will be located in the Washington Auditorium. In this building will also be housed the Registration Bureau, Technical Exhibits, and Motion Picture Theater.

The Committee makes certain requirements with regard to exhibits, which may be obtained by addressing "Scientific Exhibit," care American Medical Association, 535 North Dearborn Street, Chicago, Ill. The Committee will make no assignments previous to March 10th, in order that the amount of space available may be apportioned to the best advantage of all concerned.

Child Labor in Japan.

The International Labor Office, Geneva, has received information that the Emperor of Japan has approved the ratification by that country of the draft convention fixing the minimum age for the admission of children to industrial employment adopted by the first International Labor Conference in 1919. This convention fixed the general minimum age for industrial employment at 14, with special clauses for India and Japan fixing the age at 12. For Japan the clause stipulates that the children shall have finished the course in the elementary school before being admitted to employment and recommends that transitional regulations be made for children already in employment between the ages of 12 and 14.

Miss Rose Zimmern Van Vort,

Expert hospital executive and efficient business manager, available for position January 1st. Reorganization of hospitals and nursing schools a specialty. Address 3216 Monument Avenue, Richmond, Va. (Adv.)

For Sale—

$7,000 practice and office equipment in one of the best towns of Virginia. Fifteen hundred inhabitants, good surrounding country, all improved roads. Can use car entire year. Competition right, one other physician. Best offices in town. Part good contract practice. Considering moving to city if I can dispose of above to good man. Do not reply unless you mean business and want good field. Address "Doctor," care VIRGINIA MEDICAL MONTHLY. (Adv.)

Obituary

Dr. William P. McGuire,

An ex-president of the Medical Society of Virginia and for many years active in Society work, died at his home in Winchester, Va., November 15, after a short illness. He was a son of Dr. Hugh McGuire, also a leading physician of Northern Virginia, and was born in Winchester eighty years ago. Dr. McGuire served in Chew's Battery in the Confederate Army, having enlisted as a private in 1863 when just eighteen years of age. He studied medicine at the Medical College of Virginia, from which he graduated in 1867 and joined the Medical Society of Virginia in 1873. He was one of the best known and most beloved physicians in Northern Virginia, where he had practiced his profession for fifty-nine years. Dr. McGuire was at the time of his death president of the Farmers and Merchants National Bank of Winchester and was closely identified with many civic enterprises in his native town.

Shortly after entering upon the practice of medicine, Dr. McGuire married Miss Nannie Tucker, daughter of former U. S. Congressman, John Randolph Tucker. She died a number of years ago. He is survived by three daughters and one son, Dr. Hunter H. McGuire, of Winchester.

Dr. Edward Dabney Starke,

Of Norfolk, Va., died suddenly at his home in that city, on November the 21st, death being due to heart disease from which he had suffered for sometime. He had been about his duties as usual, that day, and died suddenly in the evening. Dr. Starke was born in Hanover County, Virginia, fifty-one years ago and studied medicine at the Medical College of Virginia, from which he graduated in 1903. He had been a member of the Medical Society of Virginia since 1906, and had resided in Norfolk since that time. His wife and two sons survive him.

At a called meeting of the Norfolk County Medical Society, on the 22nd day of November, 1926, the following resolutions were adopted:

The members of the Norfolk County Medical Society are deeply distressed at the death of our beloved and honored fellow member, Dr. Edward D. Starke.

Dr. Starke, by his kindly disposition and willingness to serve, was endeared to us all. We will miss him.

Be it resolved, That a page be set aside in the minute book of this Society, dedicated to his memory;

That a copy of these resolutions be sent to his family with our sympathy.

F. C. RINKER, *Chairman*,
CHAS. W. DOUGHTIE,
JAMES B. ABBITT.
Committee.

Dr. Isaac Webb Surratt,

Of Belspring, Va., died at his home in that place, October 20, having been ill only a short time. He was fifty-three years of age and had studied medicine at the Medical College of Virginia, from which he graduated in 1908, shortly thereafter becoming a member of the Medical Society of Virginia. He was secretary of the Pulaski County Board of Health.

Philip Turner Southall, M. D.

Born Amelia County, May 18, 1851, died Amelia Court House, February 17, 1926. Attended the University of Virginia and graduated from the Medical College of Virginia in 1873.

Then, as now, Amelia was abundantly supplied with physicians, and in those days before the emancipation of women, young unmarried medical men had no chance whatever in competition with older men who were married. A physician's skill was considered largely a matter of experience, and if unmarried he was "taboo." So Dr. Southall, for fifteen years, led the life of a young Virginia gentleman of the anti-Civil War period. He shot deer and "rode to hounds" or fox hunted. He was considered one of the most graceful and daring riders in a country where and at a time when everybody rode horseback. Though his vision was poor (myopia), he was quite successful in deer shooting.

At the death of Dr. Boisseau, in 1889, Dr. Southall removed to Amelia C. H., and at once entered active practice. He was without doubt the most skilled obstetrician I have ever seen operate. With forceps or version, he was supreme, and I know of more than one fine character now living who would never have seen the light of day but for his almost miraculous ability. Cesarean section was then seldom done. I have known Dr. Southall more than once to deliver an infant alive and unimpaired, on whom assembled physicians were about to do an embryotomy.

He was also an excellent business man. Together with his brother, the Hon. R. G. Southall and the late Mr. J. J. Allen, he practically made the little town of Amelia. He owned at one time the very heart of what is now the town. He was always for progress. Unlike the other property holders he would, and did, sell lots, thus building up the town. Unaided—even resisted—he had by 1910 built the Amelia High School. Dr. Southall was at that time head of the Amelia School Board. He was Chief Health Officer of Amelia for years, and was a charter member of the Medical Society of Amelia and its president from its organization to the day of his death. He was a member of the Medical Society of Virginia and a Fellow of the American Medical Association. He was vice-president of the Southside Highway Association and was largely instrumental in the construction of modern roads in Amelia County. He was a member and elected treasurer of the Society of the Cincinnati. He was for seven years assistant superintendent of the Eastern State Hospital at Williamsburg and was beloved and admired by patients and nurses alike. He was vestryman of Old Bruton Church while at Williamsburg and later served in the same capacity in Christ Church, Amelia.

He died as he had lived—*without fear.*

G. Craig Eggleston, M. D.,
President, Medical Society of Amelia.

Resolutions on Death of John W. Brodnax, M. D.

In the death of Dr. John W. Brodnax, the medical profession has lost a valuable teacher and the community and State a distinguished and useful citizen. As a teacher of anatomy, his love for the work and his knowledge of art, combined with his untiring energy, easily made him a master in that field. As an artist, he was able to make many valuable contributions to the science of anatomy, some of his drawings winning for him international recognition; but the love and esteem of his students and ever-widening circle of friends meant infinitely more to him than the fame which his scientific achievements brought him. His modest, gentle, unassuming manner obliterated all barriers between teacher and student, and the humblest student always looked upon him as a true friend and companion.

As a practitioner of medicine, he was a skillful, conscientious and sympathetic physician. Prior to his work as full-time associate professor of anatomy at the Medical College of Virginia, he enjoyed the esteem and confidence of a large clientele, ministering to its needs at all times in a skillful, unselfish manner; and, so,

Whereas, It has pleased an All-wise Providence to remove from our midst our distinguished friend and co-worker, therefore; be it resolved by the Richmond Academy of Medicine

That we deeply deplore the loss of his wise counsel and loyal fellowship;

That we extend our sympathy to his bereaved family in this dark hour of their sorrow; and be it further resolved,

That a copy of this preamble and these resolutions be sent to his family; that they be spread upon the minutes of this society, and that they be printed in the Virginia Medical Monthly as a public mark of esteem and affection.

The above draft was adopted unanimously at a meeting of the Richmond Academy of Medicine, held on November 9, 1926.

Mark W. Peyser,
Secretary-Treasurer.

Dr. Isaac Milton Brumback,

Of Opequon, Va., died October 3rd, at the age of eighty years. He was a graduate in medicine from the Medical College of Virginia in the class of 1872. When in his teens, he entered the Confederate service in the War between the States and later studied medicine, graduating from the Medical College of Virginia in the class of 1872. He is survived by his widow and four children.

Dr. Luther S. Mason

Died at his home at Clover, Va., October 14th, after an illness extending over several years. He was a native of Charlotte County, Va., and was seventy-three years of age. His medical education was had at the College of Physicians and Surgeons, Baltimore, from which he graduated in 1874. Dr. Mason's wife died some years ago and he had no children. His funeral was conducted by the local Masonic lodge of which he was a member.